LAS VIRGENES TRIUNFO JOINT POWERS AUTHORITY

Las Virgenes Municipal Water District Board Room, 4232 Las Virgenes Road, Calabasas, CA 91302

AGENDA

JOINT POWERS AUTHORITY - REGULAR MEETING

MONDAY, JUNE 5, 2023 – 5:00 PM

PUBLIC PARTICIPATION: The public may join this meeting virtually or attend in person in the Board Room. Teleconference participants will be muted until recognized at the appropriate time by the Chair. To join via teleconference, please use the following Webinar ID:

Webinar ID: https://us06web.zoom.us/j/84547500136

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845 4750 0136

For members of the public wishing to address the Board during Public Comment or during a specific agenda item, please press "Raise Hand" if you are joining via computer; or press *9 if you are joining via phone; or inform the Executive Assistant/Clerk of the Board if attending in person.

Members of the public can also access and request to speak at meetings live on-line, with audio and limited video, at www.lvmwd.com/livestream. To ensure distribution of the agenda, please submit comments 24 hours prior to the day of the meeting. Those comments, as well as any comments received during the meeting, will be distributed to the members of the Board of Directors and will be made part of the official public record of the meeting. Contact Josie Guzman, Executive Assistant/Clerk of the Board, at (818) 251-2123 or jguzman@lvmwd.com with any questions.

ACCESSIBILITY: If requested, the agenda and backup materials will be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in the implementation thereof. Any person who requires a disability-related modification or accommodation, in order to attend or participate in a meeting, including auxiliary aids or services, may request such reasonable modification or accommodation by contacting the Executive Assistant/Clerk of the Board by telephone at (818) 251-2123 or via email to jguzman@lvmwd.com at least 48 hours prior to the meeting.

Members of the public wishing to address the Las Virgenes-Triunfo Joint Powers Authority (JPA) Board of Directors are advised that a statement of Public Comment Protocols is available from the Clerk of the Board. Prior to speaking, each speaker is asked to review these protocols, complete a speakers' card, and hand it to the Clerk of the Board. Speakers will be recognized in the order the cards are received.

The Public Comments agenda item is presented to allow the public to address the Board on matters not on the agenda. The public may also present comments on matters on the agenda; speakers for agendized items will be recognized at the time the item is called up for discussion.

Materials prepared by the JPA in connection with the subject matter on the agenda are available for public inspection at 4232 Las Virgenes Road, Calabasas, CA 91302. Materials prepared by the JPA and distributed to the Board during this meeting are available for public inspection at the meeting or as soon thereafter as possible. Materials presented to the Board by the public will be maintained as part of the records of these proceedings and are available upon request to the Clerk of the Board.

PLEDGE OF ALLEGIANCE

1. **CALL TO ORDER AND ROLL CALL**

2. **APPROVAL OF AGENDA**

3. **PUBLIC COMMENTS**

   Members of the public may now address the Board of Directors ***ON MATTERS NOT APPEARING ON THE AGENDA****, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2*

4. **CONSENT CALENDAR**

   Matters listed under the Consent Calendar are considered to be routine, non-controversial and normally approved with one motion. If discussion is requested by a member of the Board on any Consent Calendar item, or if a member of the public wishes to comment on an item, that item will be removed from the Consent Calendar for separate action.

   4.A **Minutes: Regular Meeting of May 1, 2023 (Pg. 4)**
   Approve.

   4.B **Statement of Revenues, Expenses and Changes in Net Position: April 2023 (Pg. 12)**
   Receive and file the Statement of Revenues, Expenses and Changes in Net Position for the period ending on April 30, 2023.

   4.C **Las Virgenes-Triunfo Joint Powers Authority Conflict of Interest Code: Amendment (Pg. 15)**

Pass, approve, and adopt proposed Resolution No. 31, amending the Conflict of Interest Code.

5. **ILLUSTRATIVE AND/OR VERBAL PRESENTATION OF AGENDA ITEMS**

5.A **State and Federal Legislative Update**

5.B **Pure Water Project Las Virgenes-Triunfo: Update (Pg. 25)**

6. **ACTION ITEMS**

6.A **Rescheduling of July 3, 2023 Regular JPA Board Meeting (Pg. 28)**
Consider cancelling the regular JPA Board meeting on July 3, 2023, and schedule a special JPA Board Meeting on July 10, 2023.

6.B **Fiscal Year 2023-24 Proposed JPA Budget (Pg31)**
Adopt the proposed Fiscal Year 2023-24 JPA Budget.

6.C **Malibou Lake Siphon Replacement Project: Adoption of Mitigated Negative Declaration and Authorization of Call for Bids (Pg. 57)**
Adopt the Mitigated Negative Declaration, authorize the Administering Agent/General Manager to execute and file a Notice of Determination with the Los Angeles County Clerk and authorize the issuance of a call for bids for the Malibou Lake Siphon Replacement Project.

6.D **Tapia Water Reclamation Facility: Flood Protection Evaluation Update (Pg. 170)**
Receive and file the Tapia Water Reclamation Facility Flood Protection Evaluation Update.

6.E **Pure Water Project Las Virgenes-Triunfo: Update on Public Outreach Plan (Pg. 465)**
Receive and file an update on the public outreach plan and provide feedback on new or additional outreach activities that should be considered for the Pure Water Project Las Virgenes-Triunfo.

6.F **Pure Water Project Las Virgenes-Triunfo: Continued Engagement of Independent Advisory Panel (Pg. 474)**
Accept the proposal from the National Water Research Institute and authorize the Administering Agent/General Manager to execute a professional services agreement, in the amount of $77,704, for administration and facilitation of an Independent Advisory Panel on the Pure Water Project Las Virgenes-Triunfo.

7. **BOARD COMMENTS**

8. **ADMINISTERING AGENT/GENERAL MANAGER REPORT**

9. **FUTURE AGENDA ITEMS**

10. **INFORMATION ITEMS**

11. **PUBLIC COMMENTS**

Members of the public may now address the Board of Directors ***ON MATTERS NOT***

***APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2*

12. **ADJOURNMENT**

Pursuant to Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and applicable federal rules and regulations, requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Executive Assistant/Clerk of the Board in advance of the meeting to ensure availability of the requested service or accommodation. Notices, agendas, and public documents related to the Board meetings can be made available in appropriate alternative format upon request.

LAS VIRGENES – TRIUNFO
JOINT POWERS AUTHORITY
MINUTES
REGULAR MEETING

5:00 PM May 1, 2023

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance to the Flag was led by Janna Orkney.

1. CALL TO ORDER AND ROLL CALL

The meeting was called to order at **5:00 p.m.** by Chair Jane Nye in the Board Room at Las Virgenes Municipal Water District headquarters at 4232 Las Virgenes Road, Calabasas, CA 91302. Josie Guzman, Clerk of the Board, conducted the roll call.

Present: Directors Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, and Wall
Absent: None

2. APPROVAL OF AGENDA

Director Wall moved to approve the agenda. Motion seconded by Director Caspary. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

3. PUBLIC COMMENTS

None.

4. CONSENT CALENDAR

Director Polan pulled Item 4A for discussion.

B Statement of Revenues, Expenses, and Changes in Net Position: March 2023

Receive and file the Statement of Revenues, Expenses, and Changes in Net Position for the period ending on March 31, 2023.

C Heal the Bay's "Bring Back the Beach" Event: Attendance

Authorize one Board Member from each agency and the Administering Agent/General Manager to attend the Heal the Bay "Bring Back the Beach" Event at a cost of $750 per person.

Director Caspary moved to approve the Consent Calendar. Motion seconded by Director Wall. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

4. CONSENT CALENDAR – SEPARATE ACTION ITEM

A Minutes: Regular Meeting of April 3, 2023: Approve

Director Polan withdrew his request to discuss the Minutes of April 3, 2023.

Director Polan moved to approve Consent Calendar Item 4A. Motion seconded by Director Orkney. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

5. ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A State and Federal Legislative Update

Lowry Crook, federal lobbyist for the JPA with Best Best & Krieger LLP (BBK), provided the status of debt ceiling negotiations, and noted that the federal government would not be able meet spending obligations by the end of May if negotiations were not finalized. He reported that Congress failed to override President Joe Biden's veto on clean water regulations for waters and wetlands regulated under the Clean Water Act, and a case was pending in the Supreme

Court related to wetlands protected under the Clean Water Act. He also provided an update regarding the U.S. Environmental Protection Agency's (EPA) proposed regulations for maximum contaminant levels (MCLs) for per- and polyfluoroalkyl substances (PFAS), and noted that the EPA was proposing four parts per trillion of PFAS in drinking water, which was lower than California's voluntary limit. He noted that the comment period for the proposed regulations would end at the end of May. He also reported that an advanced notice was released for proposed regulations under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) designating perfluorooctanoic acid (PFOA) and perfluorooctanoic sulfonate (PFOS) as hazardous substances. He noted that the comment period for the proposed regulations would end mid-June. He also reported that discussions had begun regarding the California Congressional delegation's water and drought bills. He responded to a question regarding S.188 Wildfire Emergency of 2023 Landscape-scale Forest Restoration Projects by stating that this bill would direct the Secretary of Agriculture to conduct additional large-scale forest restoration and forest management to prevent wildfires. He also responded to a question regarding H.R. 872 Federally Integrated Species Health (FISH) Act by stating that this bill would place all Endangered Species Act regulations under the U.S. Fish and Wildlife Service at the Department of Interior.

Syrus Devers, state lobbyist for the JPA with BBK, reported that SB 366 (Caballero) The California Water Plan Long-Term Supply Projects, and SB 23 (Caballero) Water Supply and Flood Risk Reduction Projects Expedited Permitting were moving forward. He noted that bills related to modernizing water rights received amendments; however, the amendments did not address the District's most important concerns. He also reported that AB 838 (Connelly) California Water Affordability and Infrastructure Transparency Act included provisions to calculate the median and total dollar amounts billed to customer accounts. He noted that extensive information on water rates was already being reported, and the California Municipal Utilities Association (CMUA) and the Association of California Water Agencies (ACWA) submitted opposition letters. He also reported that AB 755 (Papan) Water, Public Entity, Cost of Service Analysis would require the identification of major water users who are in the top ten percent, and calculation of how much extra residential customers would be paying as a result of the cost of major water users. He noted that letters of opposition were submitted. He also reported that SB 687 (Eggman) Water Quality Control Plan, Delta Conveyance Project proposed to delay the tunnels under the Delta Conveyance Project. He noted that the JPA was a State Water Project-Dependent Area, and this bill would attack the infrastructure that would provide water reliability. He stated that he and Jeremy Wolf, Legislative Program Manager, were working on preparing opposition letters against this bill.

B Pure Water Project Las Virgenes-Triunfo: Update

Oliver Slosser, Engineering Program Manager, presented the report. He noted that ten entities submitted their point of contact and intent to submit proposals for the

Progressive Design-Build Procurement, and staff was working on preparing an addendum to the Request for Proposals in response to questions. He also reported that the application for State Revolving Funds was submitted, and staff was continuing the application process for MWD Local Resources Program funding. He noted that staff and the Jacobs Team met with Director Polan to discuss the architectural direction for the project. He also noted that staff were looking into reengaging the Independent Advisory Panel to review reservoir modeling and tracer studies, and prepare for discussions with regulators.

6. ACTION ITEMS

A JPA Fiscal Year 2023-24 Draft Budget Review

Review and provide feedback on the JPA Fiscal Year 2023-24 Draft Budget.

Debbie Rosales, Financial Analyst II, presented the report and a PowerPoint presentation.

Administering Agent/General Manager David Pedersen responded to a question regarding the calculation of recycled water rates by stating that the rates were calculated annually using the Board-approved criteria, and staff were looking at a three-year average for projecting recycled water sales for budgeting purposes.

Ms. Rosales responded to a question regarding the estimated carry forward budget for the Pure Water Project Las Virgenes-Triunfo by stating that the budgeted amount would be carried forward based on rate of expenditures. She noted that staff were evaluating the cash flows received to determine whether all funds would be expended in the coming year. Brian Richie, Finance Manager, added that the carry forward budget calculation would be updated when the budget is presented for adoption.

Ms. Rosales responded to questions regarding budgeting for anticipated inflation and increased insurance premiums.

Director Caspary moved to approve Item 6A. Motion seconded by Director Polan. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

B Indicative Credit Rating for Financing of Pure Water Project Las Virgenes-Triunfo

Authorize the Administering Agent/General Manager to execute an agreement with Kroll Bond Rating Agency, LLC, in the amount of $48,000, for an indicative credit rating required for the planned financing of the Pure Water Project Las Virgenes-Triunfo.

Don Patterson, Director of Finance and Administration, presented the report.

Greg Swartz, Financial Advisor representing Piper Sandler, responded to a question regarding an indicative credit rating by stating that it was largely the same as a public rating except that it would not be a published rating, and an indicative rating would afford the opportunity to seek a public rating. He noted that an indicative rating would be used to comply with the Water Infrastructure Finance and Innovation Act (WIFIA) statutory requirements.

Director Orkney moved to approve Item 6B. Motion seconded by Director Polan. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

C Proposed Formation of Las Virgenes-Triunfo Joint Powers Financing Authority

Authorize staff and legal counsel to prepare the documentation required to form the Las Virgenes-Triunfo Joint Powers Financing Authority to facilitate the joint financing of the Pure Water Project Las Virgenes-Triunfo.

Don Patterson, Director of Finance and Administration, provided introductory remarks and introduced Brian Forbath, Bond Counsel from Stradling Yocca Carlson & Rauth.

Mr. Forbath provided a PowerPoint presentation of the Pure Water Project Las Virgenes-Triunfo (Pure Water Project) legal and finance structure including: an overview on joint powers authorities; the intent to finance the Pure Water Project; existing JPA agreement does not include provisions to finance projects; options to form a new Joint Powers Financing Authority (JPFA) or amend the exiting JPA to carry out financing of the Pure Water Project; and separate installment sale agreements with 70.6 percent by Las Virgenes Municipal Water District and 29.4 percent by Triunfo Water & Sanitation District. He responded to questions regarding the structure of JPFAs and similarities with public financing authorities.

John Mathews, Legal Counsel for Triunfo Water & Sanitation District, noted that the proposed JPFA would be similar to the Triunfo Financing Authority.

Director Caspary moved to approve Item 6C. Motion seconded by Director Lewitt. Motion carried 10-0 by the following vote:

AYES: Burns, Caspary, Coradeschi, Lewitt, Nye, Orkney, Polan, Shapiro, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: None

7. BOARD COMMENTS

Director Polan reported that he viewed the April 25th MWD Subcommittee on Bay-Delta Meeting where an update was provided regarding the Delta Smelt Preservation Project.

Director Orkney expressed concern with the placement of the television monitor as it was obstructing the view of the audience. Administering Agent/General Manager David Pedersen noted that improvements to the audiovisual equipment would soon be made in the Board Room.

8. ADMINISTERING AGENT/GENERAL MANAGER REPORT

Administering Agent/General Manager David Pedersen reported that staff would bring back the future agenda items requested by Directors Orkney and Polan at the next JPA Board meeting regarding public outreach for the Pure Water Project Las Virgenes-Triunfo at events held in Ventura County and to the Los Angeles County Medical Association. He noted staff would send a letter to the Regional Water Quality Control Board for authorization to discharge to the Malibu Creek during the creek avoidance period due to forecasted rain. He also reported that flow in Malibu Creek measured 159 cubic feet per second (CFS).

9. FUTURE AGENDA ITEMS

Director Polan requested a Future Agenda Item regarding the U.S. Environmental Protection Agency's (EPA) proposed regulations for maximum contaminant levels (MCLs) for per- and polyfluoroalkyl substances (PFAS), and whether an analysis would be conducted before regulations are issued.

10. PUBLIC COMMENTS

None.

11. ADJOURNMENT

Seeing no further business to come before the Board, the meeting was duly adjourned at **6:24 p.m**.

Jane Nye, Chair

ATTEST:

Jay Lewitt, Vice Chair

AGENDA ITEM NO. 4.B

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: Finance and Administration

SUBJECT: Statement of Revenues, Expenses and Changes in Net Position: April 2023

SUMMARY:

To ensure effective utilization of the public's assets and money, a monthly Statement of Revenues, Expenses and Changes in Net Position (Statement) is provided to the Board for review. The report is a high-level overview that summarizes the JPA's financial status through the end of the referenced month. The report is formatted to mirror the presentation in the JPA's Annual Financial Statements and consists of an operating financial section, non-operating financial section and year-to-date changes in net position. The report is unaudited and preliminary due to the timing of its preparation versus month-end closing for the reported month.

RECOMMENDATION(S):

Receive and file the Statement of Revenues, Expenses and Changes in Net Position for the period ending on April 30, 2023.

FINANCIAL IMPACT:

There is no financial impact associated with the report.

DISCUSSION:

JPA operating revenues year-to-date through April 2023 of Fiscal Year 2022-23 were $2.9 million, a decrease of $2.0 million as compared to prior year revenues of $4.9 million. The decrease in revenues for the JPA as compared to the prior year and budget was due to a one-time "indifference payment" received in the prior year from Southern California Edison for $2.8 million. The indifference payment compensated the JPA for the effects of the "peak-hour shift" costs that were approved by the California Public Utilities Commission and resulted in a decrease to the projected cost-savings associated with the Rancho Phase 2 Solar Generation Project. Partially offsetting the year-over-year decrease in revenues was a one-time insurance claim payment of $0.6 million received by the JPA in the current fiscal year. The payment reimbursed the JPA for building damage repair costs at the Rancho Las Virgenes Composting Facility that resulted from the Woolsey Fire in 2018.

Wholesale recycled water sales of $2.3 million were favorable as compared to prior year sales by $0.3 million (or 12.6%) through April 2023. Recycled water sales through April 2023

encompassed 83.6% of the budget, which was in-line with expectations through this point in the fiscal year.

JPA operating expenses year-to-date through April 2023 were $19.0 million, which were $2.9 million (or 17.6%) above the prior year's operating expenses of $16.1 million. Current year expenses through April 2023 comprised 84.9% of the $22.4 million annual operating budget, materially in-line with expectations through this point in the fiscal year.

Increases in operating expenses versus the prior year were primarily due to higher general and administrative (G&A) costs, which were up $1.6 million year-to-date through April 30, 2023. G&A costs of $10.1 million correspond to 82.2% of the $12.3 million budgeted for Fiscal Year 2022-23, in-line with projections through this point in the fiscal year.

Expenses of $2.8 million at the Rancho Las Virgenes Composting Facility were up $0.6 million year-over-year through April 30, 2023. The increase was driven mainly by deferred maintenance and building repairs initiated during the current year, coupled with a one-time cost of $110,000 for the purchase and replacement of biofilter media. Approximately 86% of the budget was expended at the Rancho Las Virgenes Composting Facility through April 2023, which is materially in-line with budget expectations for this point in the fiscal year.

Expenses of $3.8 million at the Tapia Water Reclamation Facility comprised 89.8% of the annual budget through 10 months of the fiscal year and were up 11.2% versus prior year expenses of $3.4 million. Much of the increase was due to escalating chemical costs including sodium hypochlorite and sodium bisulfite as compared to the prior year. Recycled water transmission and distribution costs of $1.8 million year-to-date were up $0.2 million (or 11.8%) versus prior year expenses for the same period of $1.6 million. Continuing revenue and expense trends will be monitored and reported as part of the on-going financial reviews presented throughout the fiscal year.

Within the attached report, the “Current Budget” column pertains to the current fiscal year budget that was adopted and/or amended by the Board. The “Actual Year-to-Date” columns presents the cumulative year-to-date revenues and expenses for both the current fiscal year and prior fiscal year. Lastly, the “Variance with Prior Year” column calculates the net difference between the current fiscal year-to-date balance and the prior fiscal year-to-date balance.

GOALS:

Ensure Effective Utilization of the Public's Assets and Money

Prepared by: Brian Richie, Finance Manager

ATTACHMENTS:
Statement of Revenues, Expenses and Changes in Net Position: April 2023

LAS VIRGENES-TRIUNFO JOINT POWERS AUTHORITY
Statement of Revenues, Expenses, and Changes in Net Position
For the Month ended April 30, 2023 (Preliminary) and 2022
(dollars in thousands)

	Current Budget	Through 83% of fiscal year Actual Year-to-Date		Variance with Prior Year Positive (Negative)
	2022/23	2022/23	2021/22	2022/23 to 2021/22
OPERATING REVENUES:				
Wholesale recycled water sales	$ 2,691	$ 2,250	$ 1,999	$ 251
Other income	65	625	2,882	(2,257)
Total operating revenues	**2,756**	**2,875**	**4,881**	**(2,006)**
OPERATING EXPENSES:				
Treatment Plant	4,267	3,831	3,445	386
Recycled water transmission and distribution	2,103	1,819	1,627	192
Compost Plant	3,301	2,835	2,226	609
Sewer	171	137	160	(23)
General and administrative	12,337	10,142	8,536	1,606
Other operating expenses	261	281	199	82
Total operating expenses	**22,440**	**19,045**	**16,193**	**2,852**
OPERATING INCOME (LOSS) BEFORE BILLING TO PARTICIPANTS	(19,684)	(16,170)	(11,312)	(4,858)
Billing to Participants	19,684	15,900	11,231	4,669
OPERATING INCOME (LOSS)	**-**	**(270)**	**(81)**	**(189)**
NONOPERATING REVENUES (EXPENSES):				
Interest income (expense)	-	199	112	87
Other revenues (expenses)	-	9	14	(5)
Total nonoperating revenues (expenses)	**-**	**208**	**126**	**82**
CHANGES IN NET POSITION	**-**	**(62)**	**45**	**(107)**
NET POSITION:				
Beginning of fiscal year	101,134	101,134	98,362	2,772
Ending Net Position	**$ 101,134**	**$ 101,072**	**$ 98,407**	**$ 2,665**

AGENDA ITEM NO. 4.C

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: General Manager

SUBJECT: Las Virgenes-Triunfo Joint Powers Authority Conflict of Interest Code: Amendment

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SUMMARY:

The Political Reform Act requires all public agencies, including Las Virgenes-Triunfo Joint Powers Authority (JPA), to adopt a conflict of interest code. The code designates positions required to file Statement of Economic Interests (Form 700) and assigns disclosure categories specifying the types of interests to be reported. Public agencies are required to conduct reviews of their conflict of interest codes and process any necessary amendments in accordance with Fair Political Practices Commission (FPPC) regulations.

Staff reviewed the JPA's Conflict of Interest Code and identified the need to include additional positions as part of the code. Staff submitted a proposed amendment to the FPPC for review. On February 7, 2023, the FPPC approved the proposed code amendment, which became effective on March 9, 2023. Staff recommends adoption of the amended Conflict of Interest Code.

RECOMMENDATION(S):

Pass, approve, and adopt proposed Resolution No. 31, amending the Conflict of Interest Code.

FINANCIAL IMPACT:

There is no financial impact associated with this action.

DISCUSSION:

The JPA adopted its current Conflict of Interest Code on April 6, 2020. In 2022, staff conducted a biennial review of the JPA's Conflict of Interest Code and identified the need to include additional positions as part of the code. Staff submitted a proposed amendment to the FPPC for review on August 31, 2022. On December 12, 2022, the FPPC initiated a 45-day public review period and requested that the Administering Agent/General Manager sign a Declaration of the Chief Executive Officer, confirming that the JPA had satisfied all of the requirements for approval of the proposed code amendment. On February 7, 2023, the FPPC approved the code amendment, which became effective on March 9, 2023.

Proposed Resolution No. 31 would repeal Resolution No. 12 and adopt the amended Conflict of Interest Code.

Prepared by: Josie Guzman, Executive Assistant/Clerk of the Board

ATTACHMENTS:
CEO Declaration
Proposed Resolution No. 31
Amended Conflict of interest Code

DECLARATION OF CHIEF EXECUTIVE OFFICER

Multi-County Agency Conflict of Interest Code for

Las Virgenes – Triunfo Joint Powers Authority
Name of Agency

The proposed conflict of interest code specifically includes each agency position that involves the making or participation in the making of decisions which may foreseeably have a material financial effect on an economic interest. Positions that do not make or participate in decisions are not included.

The disclosure categories are written to address the agency's current programs and require disclosure of only foreseeable interests that may create a conflict of interest.

The agency has satisfied all of the requirements of Title 2, Division 6 of the California Code of Regulations Section 18750 preliminary to approval of the proposed code, including providing a comment period for both employees and the public.

Signature

12/12/22
Date

David W. Pedersen
Printed Name

Administering Agent/General Manager
Title

RESOLUTION NO. 31

A RESOLUTION OF THE GOVERNING BOARD OF THE LAS VIRGENES-TRIUNFO JOINT POWERS AUTHORITY REPEALING RESOLUTION NO. 12 DEALING WITH THE CONFLICT OF INTEREST CODE AND ADOPTING IN LIEU THEREOF A NEW CONFLICT OF INTEREST

WHEREAS, Las Virgenes – Triunfo Joint Powers authority previously adopted a Conflict of Interest and Disclosure Code in accordance with the requirements of the Political Reform Act;

WHEREAS, the Governing board of Las Virgenes – Triunfo Joint Powers Authority desires to adopt in lieu thereof the attached Conflict of Interest and Disclosure Code;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNONG BOARD OF LAS VIRGENES – TRIUNFO JOINT POWER AUTHORITY that Resolution No. 12 adopting Conflict of Interest and Disclosure Code of Las Virgenes – Triunfo Joint Powers Authority is hereby repealed.

BE IT FURTHER RESOLVED, that Las Virgenes – Triunfo Joint Powers Authority does hereby adopt by reference Fair Political Practices Commission ("FPPC") Regulation 18730 (2. California Code of Regulations Section 18730), and any amendments thereto, as the Authority's Conflict of Interest and Disclosure Code, including the attached Appendix A, setting for the designated positions within the Authority and their disclosure obligations, and Appendix B, setting forth the disclosure categories.

BE IT FURTHER RESOLVED, that individuals holding designated positions shall file Statement of Economic Interests with the Administering Agent/General Manager. Within five days of receipt of the filed statements, the Authority shall make and retain copies and forward the original statements to the FPPC.

BE IT FURTHER RESOLVED, that a certified copy of this Resolution, including the attached Conflict of Interest and Disclosure Code of Las Virgenes – Triunfo Joint Powers Authority, shall be forwarded to the FPPC.

PASS, APPROVED, AND ADOPTED this 6th day of June 2023.

_____
Jane Nye, Chair

ATTEST:

_____
Jay Lewitt, Vice Chair

APPROVED AS TO FORM:

_____
Legal Counsel

LAS VIRGENES-TRIUNFO JOINT POWERS AUTHORITY

CONFLICT OF INTEREST CODE

The Political Reform Act (Government Code Section 81000, et seq.) requires state and local government agencies to adopt and promulgate conflict of interest codes. The Fair Political Practices Commission has adopted a regulation (2 Cal. Code of Regs. Sec. 18730) that contains the terms of a standard conflict of interest code, which can be incorporated by reference in an agency's code. After public notice and hearing, the standard code may be amended by the Fair Political Practices Commission to conform to amendments in the Political Reform Act. Therefore, the terms of 2 California Code of Regulations Section 18730 and any amendments to it duly adopted by the Fair Political Practices Commission are hereby incorporated by reference. This regulation and the attached Appendices designating positions and establishing disclosure categories, shall constitute the conflict of interest code of the **Las Virgenes-Triunfo Joint Powers Authority** ("**Authority"**).

Individuals holding designated positions shall file their statements of economic interests with the **Authority**, which will make the statements available for public inspection and reproduction. (Gov. Code Sec. 81008.) Upon receipt of the statements, the **Authority** shall make and retain copies and forward the originals to the **Fair Political Practices Commission.** All statements will be retained by the **Fair Political Practices Commission**.

APPENDIX "A"

The following positions are NOT covered by the code because they must file under section 87200 and, therefore, are listed for informational purposes only:

Board of Directors
Administering Agent/General Manager
Director of Finance and Administration
Finance Manager

An individual holding one of the above-listed positions may contact the Fair Political Practices Commission for assistance or written advice regarding their filing obligations if they believe their position has been categorized incorrectly. The Fair Political Practices Commission makes the final determination whether a position is covered by section 87200.

DESIGNATED POSITION AND ASSIGNED CATEGORIES OF DISCLOSURE

Designated Position	**Assigned Disclosure Category**
Authority Counsel	1, 2, 3
Director of Engineering and External Affairs	1, 2, 3
Director of Facilities and Operations	1, 2, 3
Executive Assistant/Clerk of the Board	1
Purchasing Supervisor	1
Administrative Services Coordinator	1
Customer Service Manager	1
Facilities Manager	1
Human Resources Manager	1
Information Systems Manager	1
Principal Engineer	1
Public Affairs and Communications Manager	1
Resource Conservation Manager	1
Water Reclamation Manager	1
Water Systems Manager	1
Consultants/New Positions	*

*Consultants/new positions shall be included in the list of designated positions and shall disclose pursuant to the broadest disclosure category in the code subject to the following limitation:

> The Administering Agent/General Manager of the Authority may determine in writing that a particular consultant or new position, although a "designated position," is hired to perform a range of duties that is limited in scope and thus, is not required to comply fully with the disclosure requirements described in this section. Such a determination shall include a description of the consultant's or new position's duties and based upon that description, a statement of the extent of disclosure requirements.

The Administering Agent/General Manager's determination is a public record and shall be retained for public inspection in the same manner and location as this conflict of interest code. (Government Code Section 81008.)

Note: The positions of Administering Agent/General Manager, Director of Finance and Administration, Director of Resource Conservation & Public Outreach, Director of Facilities and Operation, Executive Assistant/Clerk of the Board, Finance Manager, Purchasing Supervisor, Administrative Services Coordinator, Customer Service Manager, Facilities Manager, Human Resources Manager, Information Systems Manager, Principal Engineer, Public Affairs and Communications Manager, Resource Conservation Manager, Water Reclamation Manager, and Water Systems Manager are filled by Las Virgenes Municipal Water District staff members, but act in a staff capacity for the Authority.

APPENDIX "B"
DISCLOSURE CATEGORIES

Category 1: Investments and business positions in business entities, and income, including loans, gifts, and travel payments, from sources that provide supplies, materials, machinery, or equipment of the type utilized by the Authority as well as all services including, but not limited to, real estate development and consulting firms.

Category 2: Interests in real property located within the jurisdiction or within two miles of the boundaries of the jurisdiction or within two miles of any land owned or used by the Authority.

Category 3: Investments and business positions in business entities, and income, including loans, gifts, and travel payments, from sources, that filed a claim against the Authority during the previous two years, or have a claim pending against the Authority.

This is the last page of the conflict of interest code for the Las Virgenes Triunfo JPA .

CERTIFICATION OF FPPC APPROVAL

Pursuant to Government Code Section 87303, the conflict of interest code for the Las Virgenes Triunfo JPA was approved on 2/7/23 .

This code will become effective on 3/9/23 .

Sukhdip Brar Digitally signed by Sukhdip Brar Date: 2023.02.07 10:43:05 -08'00'

Sukhi K. Brar
Assistant Chief Counsel
Fair Political Practices Commission

AGENDA ITEM NO. 5.B

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: Engineering and External Affairs

SUBJECT: Pure Water Project Las Virgenes-Triunfo: Update

SUMMARY:

On August 1, 2016, the JPA Board selected Scenario No. 4, use of Las Virgenes Reservoir for indirect potable reuse, as the preferred alternative for the Recycled Water Seasonal Storage Basis of Design Report. The selected alternative was subsequently renamed the Pure Water Project Las Virgenes-Triunfo. Staff was also directed to report back to the Board on the next steps for implementation of the project.

Staff released a request for proposals (RFP) for Owner's Advisor/Program Manager services for the Pure Water Project Las Virgenes-Triunfo on May 8, 2020. The selection of an Owner's Advisor/Program Manager to support the effort was an important next step to begin implementation of the Pure Water Program. Utilization of an Owner's Advisor/Program Manager is consistent with the approach taken by other public agencies pursuing potable reuse projects of similar scope and complexity. Among the critical elements of the proposed scope are completion of the preliminary design and environmental documentation in support of the Pure Water Program. The scope of work under the contract includes program management, preparation of preliminary design and/or alternative delivery bridging documents, preparation of all environmental studies and documentation for compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), preparation of studies and documents necessary to secure all required regulatory permits, and support of efforts to secure grant funding or low-interest loans.

On September 8, 2020, the JPA Board accepted a proposal from Jacobs Engineering Group, Inc., and authorized the Administering Agent/General Manager to execute a professional services agreement for Owner's Advisor/Program Manager services for the Pure Water Project Las Virgenes-Triunfo. This report serves to provide a summary of the progress to-date on the work performed by Jacobs Engineering Group, Inc., including major monthly milestones, key program accomplishments, key considerations and a look-ahead of upcoming activities.

Prepared by: Eric Schlageter, Principal Engineer

ATTACHMENTS:
Monthly Update on Pure Water Project Las Virgenes-Triunfo

To: Las Virgenes-Triunfo JPA Board of Directors

From: Jennifer Phillips, Jacobs

Date: May 24, 2023

Re: Pure Water Project JPA Board Monthly Update

Pure Water Project Overview

The Pure Water Project (PWP) is an opportunity to proactively address three major challenges facing the Las Virgenes-Triunfo JPA:

- comply with more stringent regulatory requirements for discharging to Malibu Creek,
- balance seasonal variation of recycled water demand, and
- create a valuable resource to supplement the region's water supplies, enabled by California's reservoir water augmentation program.

By 2030, the plan is to have an operational advanced water purification facility (AWPF) to treat tertiary effluent from the Tapia Water Reclamation Facility for indirect potable reuse, and convey the product water to the Las Virgenes Reservoir, where it will be blended with Metropolitan Water District (MWD) supply. The current phase (Phase 1) of the project provides the programmatic process to manage such a large, complicated project, focusing on the technical, regulatory, environmental, financial, and procurement strategies to provide a foundation with more cost and project delivery clarity. Each month the Project team will provide a status report to communicate major milestones, accomplishments for the previous month, planned work for the next month, and potential challenges.

Monthly Major Milestones

- Received 7 Statement of Qualifications (SOQ) for the Progressive Design-Build (PDB) procurement of the new AWPF and Reverse Osmosis Concentrate (ROC) pipeline.

Key Program Accomplishments Last Month

Following is a summary of the key May 2023 program accomplishments. Many PWP team meetings occurred in May to plan, coordinate and implement the following activities:

May Accomplishments:

Programmatic:

- Coordinated technical, procurement, financial, regulatory and environmental efforts.

Technical:

- Continued support for the Demonstration Facility with biweekly meetings to review performance data trends and share insights. Implementation of preformed monochloramine dosing prior to membrane filtration is showing decreased fouling.

- Began development of a summary for the RO concentrate pipe run pilot at the Demonstration Facility that assessed potential scaling in the ≈14-mile pipeline.
- Continued development of an Enhanced Source Control Plan, which augments existing water reclamation facility pretreatment programs with the goal of protecting human health in potable reuse projects.
- Continued reservoir tracer test plan development.

Regulatory/Environmental:

- Continued discussions with the National Water Research Institute (NWRI) to re-engage the Independent Advisory Panel (IAP) to review the reservoir tracer test plan in the near term, and general engagement through commissioning of the AWPF.
- Continued development of the 1211 wastewater change petition application for Tapia WRF.

Financial:

- Continued development of the California Drinking Water State Revolving Fund (DWSRF) application.
- Continued development of the MWD Local Resources Program (LRP) application.
- Participated in coordination meetings with LVMWD, TWSD, Piper Sandler and Jacobs.
- Continued tracking of funding options and supporting LVMWD staff, as needed.

Procurement:

- Received 7 SOQs for the PDB procurement of the new AWPF and ROC pipeline. Short list selection notification is planned for June 13.
- Continued development of the Request for Proposals (RFP) as part of the PDB process.
- Met with the JPA's legal counsel to review the draft procurement documents biweekly.

Look Ahead

The Project Team is finalizing the procurement documents, meeting with regulators to review details of the project, supporting the development of funding applications, and proceeding with the strategies outlined in the Program Implementation Plan. The Project Team is focused on the following activities for June.

- Finalize and submit the 1211 wastewater change petition application to the State Water Resources Control Board.
- Finalize and submit the MWD LRP application for funding.
- Finalize and submit the Drinking Water SRF application for funding.
- Support performance trending for the Demonstration Facility.

AGENDA ITEM NO. 6.A

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: General Manager

SUBJECT: Rescheduling of July 3, 2023 Regular JPA Board Meeting

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SUMMARY:

The JPA Board regularly meets on the first Monday of each month. The July 3, 2023 JPA Board meeting falls immediately prior to Independence Day on July 4th, so some Board Members may not be available. As a result, the Board may wish to consider cancelling the July 3, 2023 regular JPA Board meeting and scheduling a special JPA Board meeting on July 10, 2023, or an alternate date.

Attached for reference is the previously-approved 2023 Board Meeting Calendar.

RECOMMENDATION(S):

Consider cancelling the regular JPA Board meeting on July 3, 2023, and schedule a special JPA Board Meeting on July 10, 2023.

Prepared by: Josie Guzman, Executive Assistant/Clerk of the Board

ATTACHMENTS:
JPA Board Meeting Calendar

2023

JANUARY						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9 JPA	10	11	12	13	14
15	16	17 LV	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

01/03 LV & JPA Meetings Canceled
01/09 JPA Spc. Mtg.
CASA Winter Conf. Palm Springs 01/25 – 01/27

FEBRUARY						
S	M	T	W	T	F	S
			1	2	3	4
5	6 JPA	7 LV	8	9	10	11
12	13	14	15	16	17	18
19	20	21 LV	22	23	24	25
26	27	28				

CASA Washington DC Policy Forum 02/27 – 03/01
ACWA Washington DC 02/28 – 03/02

MARCH						
S	M	T	W	T	F	S
			1	2	3	4
5	6 JPA	7 LV	8	9	10	11
12	13	14	15	16	17	18
19	20	21 LV	22	23	24	25
26	27	28	29	20	31	

WateReuse Symposium Atlanta, GA 03/05 – 03/08
ACWA Legislative Symposium, Sacramento 03/23

APRIL						
S	M	T	W	T	F	S
						1
2	3 JPA	4 LV	5	6	7	8
9	10	11	12	13	14	15
16	17	18 LV	19	20	21	22
23	24	25	26	27	28	29
30						

Passover 04/05 – 04/07 (begins sundown day before)
Passover 04/11 – 04/13 (begins sundown day before)

MAY						
S	M	T	W	T	F	S
	1 JPA	2 LV	3	4	5	6
7	8	9	10	11	12	13
14	15	16 LV	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JUNE						
S	M	T	W	T	F	S
				1	2	3
4	5 JPA	6 LV	7	8	9	10
11	12	13	14	15	16	17
18	19	20 LV	21	22	23	24
25	26	27	28	29	30	

ACWA Spring Conf. Monterey 05/09 – 05/11
Shavuot 05/25 – 05/27 (begins sundown day before)

	LV Meeting
	JPA Meeting
	District Holiday
	TWSD Meeting

2023

JULY

S	M	T	W	T	F	S
						1
2	3 JPA	4	5 LV	6	7	8
9	10	11	12	13	14	15
16	17	18 LV	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST

S	M	T	W	T	F	S
		1 LV	2	3	4	5
6	7 JPA	8	9	10	11	12
13	14	15 LV	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

CASA Annual Conf., San Diego 08/09 – 08/11
CSDA Annual Conf., Monterey 08/28 – 08/31

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	L 5 J	6	7	8	9
10	11	12	13	14	15	16
17	18	19 LV	20	21	22	23
24	25	26	27	28	29	30

Rosh Hashanah 09/15 – 09/17 (begins sundown day before)
Yom Kippur 09/24 – 09/25 (begins sundown day before)
Sukkot 09/29 – 10/01 (begins sundown day before)

OCTOBER

S	M	T	W	T	F	S
1	2 JPA	3 LV	4	5	6	7
8	9	10	11	12	13	14
15	16	17 LV	18	19	20	21
22	23	24	25	26	27	28
29	30 JPA	31				

Shmini Atzeret 10/06 – 10/07 (begins sundown day before)
Simchat Torah 10/07 – 10/08 (begins sundown day before)
10/30 JPA Spc. Mtg.

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21 LV	22	23	24	25
26	27	28	29	30		

WateReuse California Conf., Indian Wells 11/05 – 11/07
11/06 JPA Mtg. Canceled
11/07 LV Mtg. Canceled
ACWA Fall Conf. Indian Wells 11/28 – 11/30

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4 JPA	5 LV	6	7	8	9
10	11	12	13	14	15	16
17	18	19 LV	20	21	22	23
24	25	26	27	28	29	30
31						

Chanukah 12/07 – 12/15 (begins sundown day before)
TWSD Dec. Meeting to be determined

	LV Meeting
	JPA Meeting
	District Holiday
	TWSD Meeting

AGENDA ITEM NO. 6.B

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: Finance and Administration

SUBJECT: Fiscal Year 2023-24 Proposed JPA Budget

SUMMARY:

The JPA prepares a biennial budget to support long-range strategic planning and aims to minimize mid-cycle changes to operating, capital improvement and staffing expenditures. On June 13, 2022, the JPA Board approved a Two-Year JPA Budget Plan for Fiscal Years 2022-24, including adoption of the Fiscal Year 2022-23 Budget and approval of the budget plan for Fiscal Year 2023-24. On May 1, 2023, the JPA Board reviewed and provided input on the draft Fiscal Year 2023-24 Budget.

RECOMMENDATION(S):

Adopt the proposed Fiscal Year 2023-24 JPA Budget.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

The Fiscal Year 2023-24 Proposed JPA Budget is $65.7 million.

DISCUSSION:

The JPA prepares a biennial budget to improve long-range strategic planning and aims to minimize mid-cycle changes to operating, capital improvement and staffing expenditures. As a result, the Fiscal Year 2023-24 Proposed JPA Budget represents a continuation of essentially the same levels of staffing and service with minimal changes to the operating budget.

Combined, the Fiscal Year 2023-24 Proposed JPA Budget totals $65.7 million with the operating budget representing 37.2% and the capital improvements budget representing 62.8% of the total amount.

Operating Revenues:

Projected revenues of $2.8 million in Fiscal Year 2023-24 reflect a nominal increase over the $2.7 million revenues included in the adopted budget for Fiscal Year 2022-23, primarily due to increased projections for recycled water sales to the JPA's two customers: Las Virgenes Municipal Water District and Triunfo Water and Sanitation District.

The wholesale rate for recycled water is based on the operating costs for recycled water reservoirs, system operations and pump stations, administrative overhead costs for recycled water operations, and depreciation expense for recycled water capital assets. For Fiscal Year 2023-24, the wholesale rate for recycled water is proposed to increase 1.6% from the current Fiscal Year 2022-23 rate ($570.32 per acre-foot to $579.44 per acre-foot). The proposed Fiscal Year 2023-24 rate of $579.44 reflects an increase of less than 1% over the originally-proposed Fiscal Year 2023-24 rate of $574.31 included in the budget plan.

Operating Expenses:

The Fiscal Year 2023-24 JPA Proposed Budget for operating expenses is $24.4 million with net operating expenses of $21.6 million ($2.8 million in revenues less $24.4 million in expenses). The proposed net operating expenses increased from the budget plan by $324,000 as a result of an increase in property and earthquake insurance premiums for the upcoming fiscal year, offset by an increase in wholesale recycled water revenues. The Fiscal Year 2023-24 proposed operating budget reflects an increase of $1.72 million, or 7.85% over the adopted Fiscal Year 2022-23 Budget.

Capital Improvement Projects Expenses:

The JPA proposed capital improvement projects budget is $41.3 million, which includes carryover amounts of $13.9 million. The amount represents an increase of $4.3 million in Fiscal Year 2023-24 over the prior fiscal year.

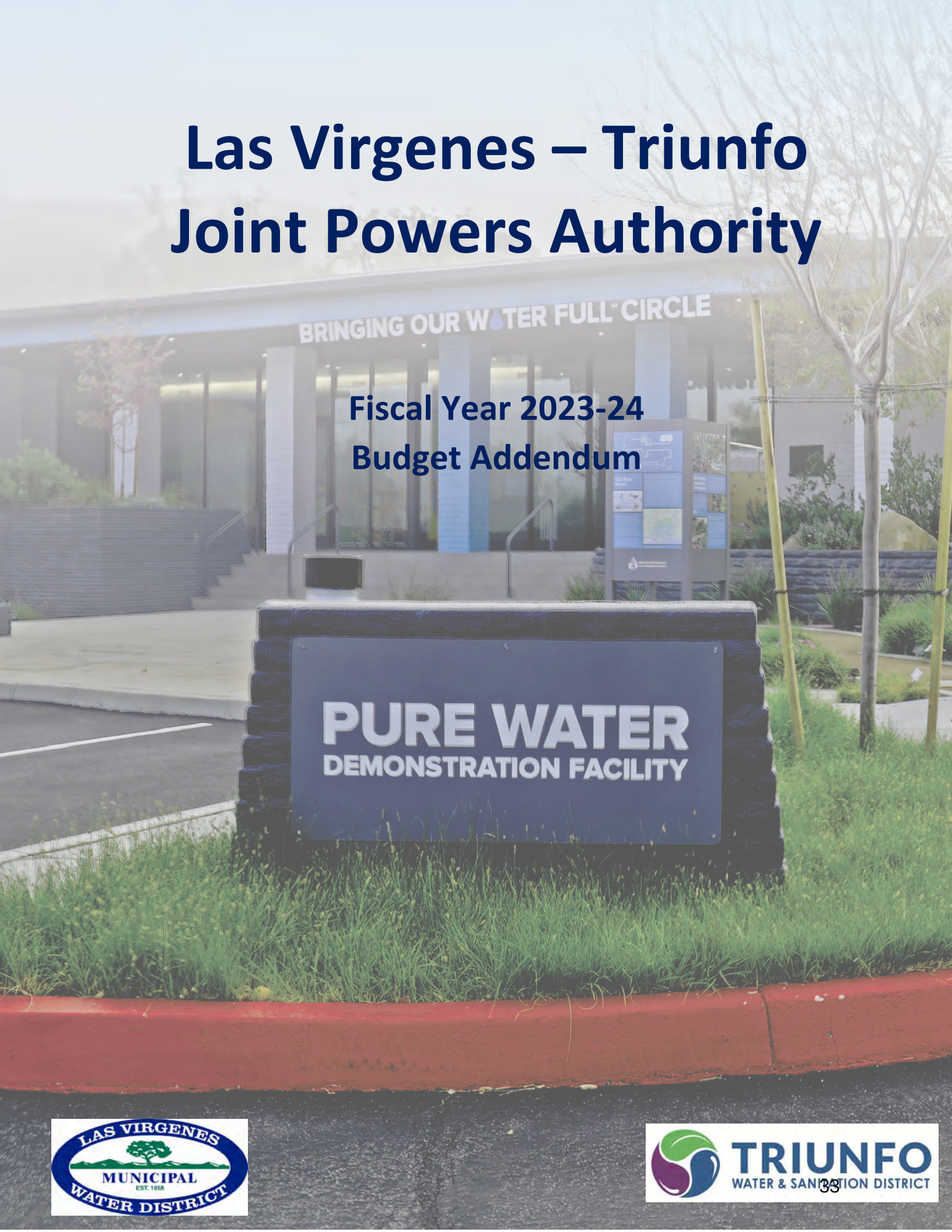
GOALS:

Ensure Effective Utilization of the Public's Assets and Money

Prepared by: Debbie Rosales, Financial Analyst II

ATTACHMENTS:
Fiscal Year 2023-24 Proposed JPA Budget
Fiscal Year 2023-24 Budget Presentation

Las Virgenes – Triunfo Joint Powers Authority



Fiscal Year 2023-24
Budget Addendum

LAS VIRGENES MUNICIPAL WATER DISTRICT EST. 1958

TRIUNFO WATER & SANITATION DISTRICT

Las Virgenes – Triunfo
Joint Powers Authority

Fiscal Year 2023-24

Las Virgenes Municipal Water District

Jay Lewitt - Vice Chair
Gary Burns
Charles Caspary
Andy Coradeschi
Leonard Polan

David Pedersen – General Manager

Triunfo Water & Sanitation District

Jane Nye - Chair
Janna Orkney
Leon Shapiro
Raymond Tjulander
James Wall

Mark Norris – General Manager

Administering Agency:
Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA 91302-1994
818.251.2100
www.lvmwd.com

JPA 2023-24 BUDGET OVERVIEW

In June 2022, the JPA Board adopted the Fiscal Year 2022-23 budget and approved the Fiscal Year 2023-24 budget plan. The purpose of preparing a two-year budget is to improve long-range and strategic planning, financial management, and program monitoring over a multi-year period. The Fiscal Year 2023-24 budget addendum provides estimated actuals for Fiscal Year 2022-23 and reflects any updates from the approved Fiscal Year 2023-24 approved budget plan.

The Fiscal Year 2023-24 JPA budget for operating expenses is $24.4 million with net operating expense of $21.6 million. Net Operating expenses increased from the budget plan by $324 thousand as a result of increased Property and Earthquake Insurance premiums, offset by an increase in Wholesale RW Revenues.

Summary of Operational Changes
Fiscal Year 2023-24

Wholesale Recycled Water Revenue	$(24,000)
Property / Earthquake Insurance	348,000
Net Increase to Operating Expense	$324,000

The JPA Capital Budget is $41.3 million, which includes carryover amounts of $13.9 million. This represents an increase of $4.3 million in Fiscal Year 2023-24 over Fiscal Year 2022-23. Significant changes to the Capital Improvements Project Budget from the approved plan are detailed in the table below:

Summary of Significant Changes
Capital Improvement Projects
Fiscal Year 2023-24

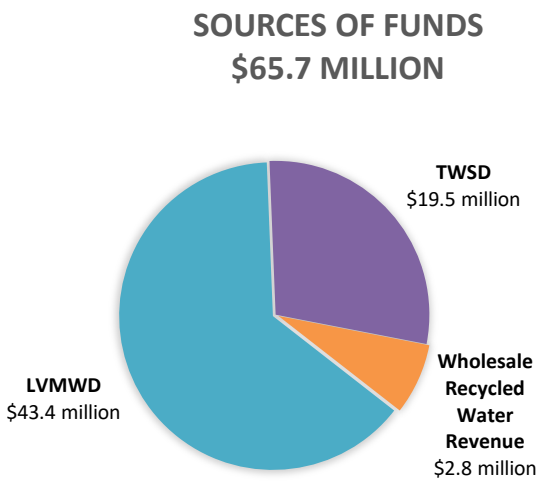
	Budget Plan	Proposed	Adjustments
10702-Tapia Effluent Pump Station Rehab	5,522,500	3,626,370	(1,896,130)
10793-RW Pump Station Battery Energy Storage	1,381,950	-	(1,381,950)
10793-RW Pump Station Battery Storage Offset	(1,170,000)	-	1,170,000
10798-Centrifuge Rebuild	158,400	527,380	368,980
10801-Tapia Aluminum Sulfate Tank Rplcmnt	1,212,000	832,500	(379,500)
10803-Malibou Lake Siphon	1,337,000	3,002,000	1,665,000
NEW-Hach Equipment Replacement	-	150,000	150,000
NEW-RW Reservoir #2 Storm/Inflow Repairs	-	105,600	105,600
NEW-Tapia Flood Wall Improvements	-	198,000	198,000
	$ 8,441,850	$ 8,441,850	$ -

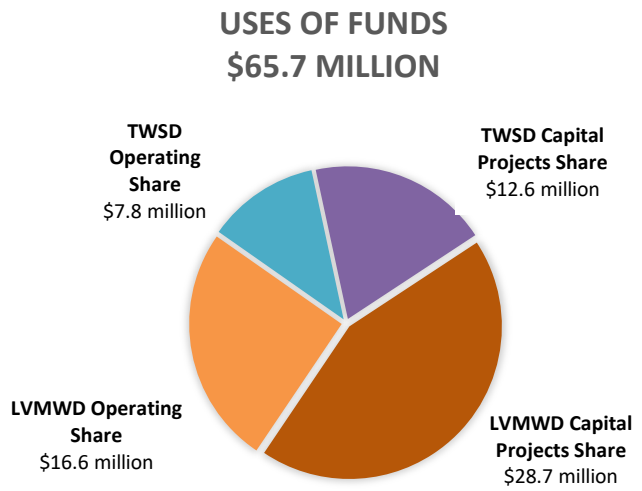
Combined, the Operating and Capital budgets for Fiscal Year 2023-24 total $65.7 million with Operating representing 37.17% and Capital representing 62.83% of that total.

LAS VIRGENES - TRIUNFO JOINT POWERS AUTHORITY
WORKING CAPITAL ANALYSIS - SOURCES AND USES OF FUNDS

	FY2020-21 ACTUAL	FY2021-22 ACTUAL	FY2022-23 BUDGET	FY2022-23 EST ACTUAL	FY2023-24 BUDGET
Operating Revenue					
Recycled Water Revenue					
Las Virgenes Municipal Water District	1,963,580	1,954,050	2,037,475	1,992,685	2,070,558
Triunfo Water & Sanitation District	570,574	573,984	653,148	710,042	663,598
Total Recycled Water Revenue	2,534,154	2,528,034	2,690,623	2,702,727	2,734,156
Other	96,798	80,000	65,000	54,836	65,000
Total Operating Revenue	2,630,952	2,608,034	2,755,623	2,757,563	2,799,156
Participant's Contribution					
Las Virgenes Municipal Water District					
Operations	12,854,710	10,697,983	13,544,725	14,017,871	14,690,472
Capital Projects	4,966,976	8,740,169	9,431,290	3,826,094	28,694,590
Total Las Virgenes	17,821,686	19,438,152	22,976,015	17,843,965	43,385,062
Triunfo Water & Sanitation District					
Operations	5,353,094	5,150,881	6,409,283	5,837,470	6,917,341
Capital Projects	2,068,401	3,639,674	3,918,576	1,593,302	12,562,681
Total Triunfo	7,421,495	8,790,555	10,327,859	7,430,772	19,480,022
Total Sources of Funds	27,874,133	30,836,741	36,059,497	28,032,300	65,664,240

	FY2020-21 ACTUAL	FY2021-22 ACTUAL	FY2022-23 BUDGET	FY2022-23 EST ACTUAL	FY2023-24 BUDGET
Operating Expenses					
Las Virgenes Municipal Water District	14,066,160	12,458,406	15,329,001	15,354,162	16,666,676
Triunfo Water & Sanitation District	6,772,596	5,998,492	7,380,630	7,258,742	7,740,293
Total Operating Expenses	20,838,756	18,456,898	22,709,631	22,612,904	24,406,969
Capital Projects					
Las Virgenes Municipal Water District	4,966,976	8,740,169	9,431,290	3,826,094	28,694,590
Triunfo Water & Sanitation District	2,068,401	3,639,674	3,918,576	1,593,302	12,562,681
Total Capital Projects	7,035,377	12,379,843	13,349,866	5,419,396	41,257,271
Total Use of Funds	27,874,133	30,836,741	36,059,497	28,032,300	65,664,240





FISCAL YEAR 2023-24 OPERATING BUDGET

ALLOCATION OF JOINT POWERS EXPENSES TO PARTICIPANTS

EXPENSES (REVENUES)	JPA EXPENSES BY ALLOCATION GROUPS					
SEWER EXPENSE	679,661	0	0	0	0	679,661
TREATMENT RECLAMATION	0	8,435,205	2,468,943	0	0	10,904,148
TREATMENT COMPOSTING	0	5,919,577	2,193,769	0	0	8,113,346
TREATMENT INJECTION	0	242,318	156,440	0	0	398,758
PUMP STATIONS	0	1,222,799	0	0	0	1,222,799
TANKS/RESERVOIR WELLS	0	105,147	0	0	0	105,147
SYSTEM OPERATION	0	37,376	0	0	0	37,376
WATER SYSTEM	0	295,005	0	0	0	295,005
ADMINISTRATIVE EXPENSES	0	1,579,029	0	3,850	0	1,582,879
PWP DEMO	0	1,067,850	0	0	0	1,067,850
REVENUES	0	(2,799,156)	0	0	0	(2,799,156)
TOTAL EXPENSES	679,661	16,105,150	4,819,152	3,850	0	21,607,813
	A	B	C	D	E	TOTAL

PARTICIPANTS SHARE	ALLOCATION OF EACH GROUP TO PARTICIPANTS											
	%	$	%	$	%	$	%	$	%	$		
U-1 SANITATION DISTRICT	36.3%	246,717	53.1%	9,062,944	42.5%	2,048,140	25.0%	963	82.2%	0	52.6%	11,358,764
U-2 SANITATION DISTRICT	3.1%	21,069	17.5%	2,986,846	20.8%	1,002,384	25.0%	963	0.0%	0	18.6%	4,011,262
RECYCLED WATER FUND				(679,554)							-3.1%	(679,554)
TOTAL LVMWD	39.4%	267,786	70.6%	11,370,236	63.3%	3,050,524	50.0%	1,926	82.2%	0	68.1%	14,690,472
TRIUNFO WSD	60.6%	411,875	29.4%	4,734,914	36.7%	1,768,628	50.0%	1,924	17.8%	0	31.9%	6,917,341
TOTAL ALLOCATION	100.0%	679,661	100.0%	16,105,150	100.0%	4,819,152	100.0%	3,850	100.0%	0	100.0%	21,607,813
	A		B		C		D		E		TOTAL	

GROUP	
A	Basis of allocation to each participant is participant's reserve capacity rights in the trunk sewer.
B	Basis of allocation to each participant is participant's reserve capacity rights in the treatment plant and recycled water system.
C	Basis of allocation to each participant is participant's flow into the treatment plant.
D	Each participant is allocated an equal share.
E	Basis of allocation is each participant's average monthly cash balance.

RW WHOLESALE RATE COMPUTATIONS

FY 2023-24 Budgeted Costs	Total Cost	Base Cost	Add'l Pumping	East-West Cost
Pump Stations	1,222,799	607,799	615,000	
Reservoirs	105,147	105,147		
System Operations	37,376	37,376		
Distribution	295,005	295,005		
RW Operations	1,660,327			
RW Ops/JPA Ops	7.0%			
Total JPA Admin	1,582,879			
RW Administration	111,276	111,276		
subtotal:Operations & Admin	1,771,603	1,156,603		
Depreciation FY20-21	962,541	962,541	-	
Total Cost	$ 2,734,144	$ 2,119,144	$ 615,000	
Costs per Acre Foot		$ 444.36	$ 135.08	$ 579.44

FY 2023-24 Estimated Deliveries

	Acre Feet	Rate		
LV Valley	216	$ 444.36	/AF	$ 95,981.76
LVMWD East	1,519	$ 579.44	/AF	$ 880,169.36
LVMWD West	1,889	$ 579.44	/AF	$ 1,094,407.16
Total LVMWD	3,624			$ 2,070,558.28
TWSD	1,145	$ 579.44	/AF	$ 663,597.85
	4,769			$ 2,734,156.13

FY 2023-24
Operating Budget

Las Virgenes - Triunfo
Joint Powers Authority
Operations Summary

	FY 21-22 Actual	FY 22-23 Budget	FY 22-23 Est Actual	FY 23-24 Budget
OPERATING REVENUES				
4235 RW Sales - LVMWD	$1,963,580	$2,037,475	$1,992,685	$2,070,558
4240 RW Sales - TWSD	570,574	653,148	710,042	663,598
4505 Other Income from Operations	94,677	50,000	54,836	50,000
4510 Compost Sales	2,121	15,000	0	15,000
TOTAL OPERATING REVENUES	**$2,630,952**	**$2,755,623**	**$2,757,563**	**$2,799,156**
OPERATIONS DIVISION EXPENSE				
5400 Labor	2,654,875	3,042,804	2,761,149	3,164,516
5405.1 Electricity	2,639,369	2,108,100	2,712,060	2,157,900
5405.2 Telephone	42,410	50,100	24,212	51,600
5405.3 Natural Gas	26,325	20,100	29,250	21,000
5405.4 Water	62,820	32,750	21,321	34,100
5410 Supplies/Material	227,052	144,900	212,321	149,600
5410.1 Fuel	38,071	41,700	43,983	42,500
5410.5 Ferric Chloride	54,014	63,000	64,116	66,000
5410.6 Defoamer/Deodorant	3,269	7,500	0	7,800
5410.7 Polymer	176,608	200,000	143,359	220,000
5410.8 Amendment	250,624	166,400	203,260	174,400
5410.9 Alum	9,410	12,600	2,635	13,200
5410.10 Sodium Hypochlorite	391,791	275,000	506,600	280,000
5410.11 Sodium Bisulfite	118,477	121,800	230,652	127,600
5410.13 Aqua Ammonia	31,519	33,300	63,034	34,869
5415 Outside Services	320,474	373,700	288,124	380,700
5417 Odor Control	52,783	260,000	253,323	290,000
5420 Permits and Fee	262,839	238,100	384,808	245,200
5425 Consulting Services	43,446	42,000	96,536	44,000
5430 Capital Outlay	0	170,000	138,621	175,000
Sub-total	$7,406,174	$7,403,854	$8,179,364	$7,679,985
MAINTENANCE DIVISION EXPENSE				
5500 Labor	590,755	750,000	737,191	785,000
5510 Supplies/Material	627,102	516,100	622,229	538,800
5515 Outside Services	661,337	561,300	659,226	580,300
5518 Building Maintenance	171,353	327,400	144,422	319,500
5520 Permits and Fee	5,775	2,000	0	2,000
5530 Capital Outlay	10,462	73,500	64,589	75,000
Sub-total	$2,066,784	$2,230,300	$2,227,657	$2,300,600
PUBLIC INFORMATION				
6602 School Education Program	0	15,000	0	15,000
6604 Public Education Program	3,554	21,000	72,397	21,000
6606 Community Group Outreach	249	5,000	1,870	5,000
6608 Intergovernmental Coordination	0	2,500	0	2,500
Sub-total	$3,803	$43,500	$74,267	$43,500

Las Virgenes - Triunfo
Joint Powers Authority
Operations Summary

	FY 21-22 Actual	FY 22-23 Budget	FY 22-23 Est Actual	FY 23-24 Budget
RESOURCE CONSERVATION				
6788 District Sprayfield	429,718	288,800	438,087	302,500
6789 005 Discharge	4,646	500	106	500
Sub-total	$434,364	$289,300	$438,193	$303,000
SPECIALTY EXPENSES				
5700 SCADA Services	101,673	94,100	55,788	98,500
5710.2 Technical Services	297	4,600	0	4,750
5712 Compost Sales/Use Tax	3,121	4,000	2,065	4,000
5715.2 Other Lab Services	323,028	342,900	207,513	350,300
7202 Allocated Lab Expense	673,097	726,109	630,892	785,772
Sub-total	$1,101,217	$1,171,709	$896,258	$1,243,322
ADMINISTRATIVE EXPENSES				
6872 Litigation/Outside Services	24,844	15,880	114,850	135,000
6516 Other Professional Services	179,094	162,864	103,140	169,379
6517 Audit Fees	1,000	3,850	3,992	3,850
7135.1 Property Insurance	143,187	189,645	224,619	352,004
7135.4 Earthquake Insurance	126,681	141,019	156,889	201,392
7153 TWSD Staff Services	0	5,000	0	5,000
6260 Rental Charge - Facility Repl	347,660	331,780	287,845	347,660
7203 Allocated Building Maint	112,496	102,294	143,350	105,024
7206 Allocated G&A	0	0	0	0
7225 Allocated Support Services	5,309,579	6,469,307	5,981,964	7,354,472
7226 Allocated Operations Services	3,581,873	4,149,329	3,780,514	4,162,781
Allocated Services (G&A)	8,891,452	10,218,636	9,762,478	10,717,250
Sub-total	$9,826,414	$11,570,969	$10,797,165	$12,836,562
TOTAL EXPENSES	**$20,838,756**	**$22,709,632**	**$22,612,904**	**$24,406,969**
NET OPERATING EXPENSE	**$18,207,804**	**$19,954,009**	**$19,855,341**	**$21,607,813**

FY 2023-24
Capital Improvement Budget

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Sanitation

SCADA System Communications Upgrade-CIP10520

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Nkwenji	2	32,447	93,100	24,750

Project Description:

Migration of the existing communication system from a serial radio network to an ethernet based radio network. Provide redundant data paths for uninterrupted communicaiton. Eliminate need to rely on telephone company equipment.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	454,664	472,138	1,773,472	
TWSD Share Amount (29.4%)	189,336	196,613	738,528	
Project Totals	644,000	668,750	2,512,000	3,213,197

Tapia Programmable Logic Controller Upgrades-10567

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Nkwenji	2	2,460,913	2,500,000	39,087

Project Description:

This project replaces programmable logic controllers (PLC's) with newer PLCs and provides necessary equipment upgrades (fiber optics, network switches and programming) to complete the installation. This is a program project which addresses Tapia in the first two years and contrate treatment in the third year. Design will occur in the first year for all facilities.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	27,595	-	
TWSD Share Amount (29.4%)	-	11,492	-	
Project Totals	-	39,087	-	2,500,000

Summer Season TMDL Compliance-10619

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Hurtado	2	3,768,849	4,597,941	829,092

Project Description:

In February 2017 the SWRCB adopted the implementation Plan for the 2013 TMDL. The plan provides for compliance with summer time limits within five years. The options for compliance include a "side stream" treatment plant, the use of potable water and nutrient trading in the watershed. This CIP funds the selection, preliminary studies, outreach, CEQA analysis, preliminary design, and final design for the summer time compliance. Project 10611 (Duct Bank Infrastructure Upgrade) was added to this program for the FY19-20 planning period. Construction of a 1 MGD "side stream" treatment facility at Tapia to treat potable water for stream flow augmentation.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	585,339	-	
TWSD Share Amount (29.4%)	-	243,753	-	
Project Totals	-	829,092	-	4,597,941

Pure Water Project-CIP10635

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Slosser	2	6,814,179	12,473,632	5,659,453

Project Description:

The Pure Water Project relies on indirect potable reuse, a water supply strategy now adopted by many cities and water agencies in California and across the United States to provide local, reliable water. The ultimate, full-scale project will minimize the discharging of usable recycled water into Malibu Creek and instead will convert this resource into a viable source for potable, locally-produced water. The full-scale project involves the construction of several pipelines and an advanced treatment plant that will convert recycled water into pure drinking water. The Pure Water Project creates an affordable and reliable local water supply that will be cost-competitive with imported water, help stabilize water rates, safeguard the local economy, and significantly reduce the uncertainty of supply associated with importing water due to climate change and long-term and reoccurring drought conditions. The project will require public participation and acceptance, regional leadership, and funding to move from concept to reality.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	9,355,234	13,350,808	234,856,300	
TWSD Share Amount (29.4%)	3,895,806	5,559,685	97,801,349	
Project Totals	13,251,040	18,910,493	332,657,649	364,041,774
Project Offset				
			Net Project	364,041,774

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Rancho Las Virgenes Storm Water Diversion-CIP10668

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	Leu	2			
Project Description:			3,746	3,746	-

Replacement of two storm water diversion structures at the Rancho Las Virgenes Composting Facility. Structures have lifted and need to be addressed. The drainae from the V-ditch goes to a discharge point in Las Virgenes Creek. There is a concern that sludge and/or reclaimed water entering into the V-ditch could enter the creek via the drainage from the V-ditch. An open/close valve should be installed at the drainage area so that operators control the contents of the V-ditch. A sump pump system with discarge piping should also be included so that the contents can be pumped either to the field or offsite.

SanitationReplacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	121,361	121,361	-	
TWSD Share Amount (29.4%)	50,539	50,539	-	
Project Totals	171,900	171,900	-	175,646

Tapia Effluent Pump Station-CIP10702

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	Leu	2			
Project Description:			15,252	196,000	180,748

Remove or abandon in place existing 4160 volt feeders currently suspended from the top slab of the Effluent Pump Station wet well, underneath the existing MCCs. Perform electrical design and replace the overhead 4160 volt feeders. Ensure coordination with 480 volt switch gear improvements.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	127,608	-	
TWSD Share Amount (29.4%)	-	53,140	-	
Project Totals	-	180,748	-	196,000

Tapia Tertiary Filter Rehab-CIP10703

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	Hurtado	2			
Project Description:			-	60,000	-

Tertiary Filters concrete rehabilitation. Approximately 25 locations that require a 1 square foot patching with rebar repair. Replace 45 metal plates (2' X 4') on the filter deck and fix concrete around the plates with proper joint sealer. Also include the repair of an electrical panel in the Filter gallery. Replace existing electric actuators at filter structure with new electric actuators. Program plant control system to function with both remote PLC control of actuators and local actuator control. Upgrade local controls to replace old filter annunciator panels which are currently located on the top deck of the filter structure.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	35,300	35,300	279,576	
TWSD Share Amount (29.4%)	14,700	14,700	116,424	
Project Totals	50,000	50,000	396,000	446,000

Multi Site Security Assessment and Improvement JPA-CIP10724

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	Nkwenji	2			
Project Description:			3,617	105,000	101,383

Security Assessment of various District sites and facilities. This will include access controls and security camera installations and improvements.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	242,299	313,876	566,607	
TWSD Share Amount (29.4%)	100,901	130,707	235,953	
Project Totals	343,200	444,583	802,560	1,250,760

Tapia Flow Equlization-CIP10737

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	Leu/Slosser	1			
Project Description:			710	450,000	449,290

This project consists of the development of a preliminary design report to evaluate the storage and conveyance of Tapia primary effluent to help store and equalize the diurnal peak flows that Tapia sees between dry and wet weather events. This maximizes effluent available for the AWT and also improves and provides consistent water quality for the feed water to the AWT.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	2,350,980	2,668,179	2,350,980	
TWSD Share Amount (29.4%)	979,020	1,111,111	979,020	
Project Totals	3,330,000	3,779,290	3,330,000	7,110,000

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Concrete Corrosion/Crack Repair-Tapia-CIP10741

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Triplett/Hurtado	1			
	Hurtado		-	132,000	132,000

Repair failing concrete at the Tapia Water Reclamation Facility.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	128,492	221,684	-	
TWSD Share Amount (29.4%)	53,508	92,316	-	
Project Totals	182,000	314,000	-	314,000

Fire Hardening- JPA Facilities FY2022-24-CIP10743

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Korkosz	2			
			-	528,000	528,000

Fire hardening strategy for JPA facilities includes preventive measures and protection systems for both internal and external sources of fire. Potential facility improvements include: 1) employing advanced detectors and utilizing a plant fire safety systems; and 2) evaluation and, if feasible, installation of a perimeter fire defense system. Fire Hardening also includes creating larger defensible space around critical structures and providing wider access roads and preventative improvements to facilities.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	372,768	-	
TWSD Share Amount (29.4%)	-	155,232	-	
Project Totals	-	528,000	-	528,000

003 Discharge Point Rehab-CIP10745

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado	1			
			137,567	273,080	94,164

Evaluate and repair failed 003 Discharge point pipeline (into Malibu Creek). Contract for inspection, an engineering study and a design report to determine the most cost effective means to repair failed 24" potable water pipeline from the Tapia Water Reclamation Facility to Malibu Creek. The pipeline will be used to supply potable supplement to the Malibu Creek during low flow periods.Approximately one (1) mile of pipeline needs to be and preventative improvements to facilities.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	391,830	458,310	-	
TWSD Share Amount (29.4%)	163,170	190,854	-	
Project Totals	555,000	649,164	-	786,731

Centrate Tank Inspection and Rehabilitation Asssesment-CIP10748

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado	2			
			-	132,000	132,000

Tank inspections and recommendations for rehabilitation.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	93,192	-	
TWSD Share Amount (29.4%)	-	38,808	-	
Project Totals	-	132,000	-	132,000

Tapia Sludge Wet Well Re-Circulation-CIP10752

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Triplett	2			
			-	62,800	-

The re-circulation (mixing) piping at the Tapia sludge wet wells is corroded and develops leaks. This project replaces this piping.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	35,300	35,300	93,192	
TWSD Share Amount (29.4%)	14,700	14,700	38,808	
Project Totals	50,000	50,000	132,000	182,000

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Tapia Air Line Repair-CIP10753

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Acevedo	1	-	330,000	330,000

The air line which conveys compressed air to the treatment process has leaks which not only allow air to escape, but also allow contaminants to enter into the pipeline and potentially the air diffusers. A large portion of this line was repaired, however a section of the pipeline was not addressed. This section needs to be addressed to stop leakage and protect the diffuser membranes.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	232,980	-	
TWSD Share Amount (29.4%)	-	97,020	-	
Project Totals	-	330,000	-	330,000

Trunk Sewer System Improvements-CIP10756

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Korkosz/Leu	2	501,600	501,600	-

Replace or rehabilitate trunk sewer system components based on CCTV, condition assessment & SSMP, end of useful life, or obsolescence. Specific projects are identified for each fiscal year.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	354,130	354,130	-	
TWSD Share Amount (29.4%)	147,470	147,470	-	
Project Totals	501,600	501,600	-	501,600

Tapia Secondary Clarifier Rehabilitation-CIP10794

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Leu	1	26,926	847,000	820,074

Repair the secondary clarifiers. The current launders are leaking and need to have the wall seal repaired. Replacement on the inlet diffusers and skimming tubes is also necessary as they are corroded and leaking. Recaulking the expansion joints and structural repairs to catwalks are needed as they are separating from the wall.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	578,972	-	
TWSD Share Amount (29.4%)	-	241,102	-	
Project Totals	-	820,074	-	847,000

Tapia Effluent Pump Station Rehabilitation-CIP10795

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Leu	3	-	-	-

Increase reliability and safety of electrical feed as well as upgrade motor starting capabilities and pumps.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	2,560,217	2,560,217	-	
TWSD Share Amount (29.4%)	1,066,153	1,066,153	-	
Project Totals	3,626,370	3,626,370	-	3,626,370

Tapia Control Building Improvements-CIP10796

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Korkosz	2	-	-	-

The control building at Tapia is aging and in need of significant repairs, remodeling, and other improvements.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	594,014	594,014	-	
TWSD Share Amount (29.4%)	247,366	247,366	-	
Project Totals	841,380	841,380	-	841,380

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

JPA Condition Assessment and Rehabilitation Planning-CIP10797

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Korkosz/Leu	1	783	100,000	99,217

Hire engineering firm to assess all electrical systems and make recommendations on necessary rehab or replacement of switch gear, VFD's transformers, switching, etc.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	70,047	-	
TWSD Share Amount (29.4%)	-	29,170	-	
Project Totals	-	99,217	-	100,000

Centrifuge Controls Upgrade-CIP10798

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Korkosz	1	-	158,400	158,400

With the summertime compliance project being constructed next year, the 001 out fall meter will be removed. Additionally, the Tapia groundwater meter has aged out and the 003 meter needs to be replaced. These meters are regulatory required. This project replaces the 001, 003 and the Tapia groundwater effluent meters.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	260,443	372,274	-	
TWSD Share Amount (29.4%)	108,457	155,026	-	
Project Totals	368,900	527,300	-	527,300

Rancho Reliability Improvements FY22-24-CIP10799

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Rabaja	2	132,000	132,000	-

Replace or rehabilitate facilities and equipment at the Rancho facility based on failure, beyond useful life, or obsolescence. Specific projects are identified for each fiscal year.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	93,192	93,192	-	
TWSD Share Amount (29.4%)	38,808	38,808	-	
Project Totals	132,000	132,000	-	132,000

Tapia Water Reclamation Facility Improvements FY22-24-CIP10800

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Bril	2	132,000	132,000	-

Replace or rehabilitate facilities and equipment at the Rancho facility based on failure, beyond useful life, or obsolescence. Specific projects are identified for each fiscal year.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	93,192	93,192	-	
TWSD Share Amount (29.4%)	38,808	38,808	-	
Project Totals	132,000	132,000	-	132,000

Tapia Aluminum Sulfate Tank Replacement-CIP10801

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Korkosz	1	40,429	816,000	775,571

Replace aging sodium bisulfite tank that is leaking. Project includes feed pump and delivery pipeline.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	11,649	559,202	-	
TWSD Share Amount (29.4%)	4,851	232,869	-	
Project Totals	16,500	792,071	-	832,500

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Rancho Control Building HVAC Replacement-CIP10802

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Korkosz	2	75,200	330,000	254,800

Replace HVAC at Rancho Control Building. HVAC has reached end of useful life and is not feasible to replace existing unit.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	179,889	-	
TWSD Share Amount (29.4%)	-	74,911	-	
Project Totals	-	254,800	-	330,000

Malibou Lake Siphon Project-CIP10803

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Korkosz/Leu	1	297,779	1,337,000	1,039,221

Repair Malibou Lake Siphon to address inflow and infiltration at the site.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (28.93%)	1,175,490	782,331	-	
TWSD Share Amount (71.07%)	489,510	1,921,890	-	
Project Totals	1,665,000	2,704,221	-	3,002,000

Rancho Las Virgenes - New Flare-CIP10804

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	HurtadoZhao	1	15,000	150,000	135,000

Design and install a new larger flare that can handle all of the digester gas flow (over 100 scfm). The current flare, which has a limited capacity of 75 scfm will remain in place to provide redundancy. The current flare does not have the capacity to dispose of all of the digester gas.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	391,830	487,140	-	
TWSD Share Amount (29.4%)	163,170	202,860	-	
Project Totals	555,000	690,000	-	705,000

Grit Chamber Mixing System Replacement-CIP10805

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado/Leu	3	-	-	-

Replace grit chamber mixing system with a more efficient mixing system.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	139,788	139,788	-	
TWSD Share Amount (29.4%)	58,212	58,212	-	
Project Totals	198,000	198,000	-	198,000

Rancho: Replace Agitators-CIP10806

	Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Project Description:	Hurtado	3	411,939	1,304,250	892,311

Purchase new compost agitators to replace the existing ones.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	629,972	-	
TWSD Share Amount (29.4%)	-	262,339	-	
Project Totals	-	892,311	-	1,304,250

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Rancho Las Virgenes SCADA Improvements-CIP10807

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Nkwenji	2	-	855,000	855,000

Project Description:

Upgrade Process Control and Instrumentatin System (PCIS) at Rancho. Rancho's PLC and HMI systems are inconsistent with current District Standards for Operational Technology.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	186,384	790,014	-	
TWSD Share Amount (29.4%)	77,616	328,986	-	
Project Totals	264,000	1,119,000	-	1,119,000

Tapia Selector Channel Wall Infill-CIP10809

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Nkwenji	2	-	396,220	396,220

Project Description:

Bypass Channel No. 2, removal of existing pipes and gates, and infilling existing penetrations between the Selector Channel and Channel No. 2

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	-	279,731	-	
TWSD Share Amount (29.4%)	-	116,489	-	
Project Totals	-	396,220	-	396,220

Tapia Flood Wall Improvements - NEW

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
	2	-	-	-

Project Description:

Hydraulic analysis of Malibu Creek and its flooding effects at Tapia. This study will also include the analysis of the new Malibu Canyon Bridge from LA County Public Works, effects of flooding with the future removal of Rindge Dam, and analysis of potential floodwall for Tapia

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	139,788	139,788	-	
TWSD Share Amount (29.4%)	58,212	58,212	-	
Project Totals	198,000	198,000	-	198,000

Hach Equipment Replacement - NEW

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Hurtado	2	-	-	-

Project Description:

Replacement of outdated Hach equipment which has reached the end of its useful life.

Sanitation Replacement (100%)	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	105,900	105,900	-	
TWSD Share Amount (29.4%)	44,100	44,100	-	
Project Totals	150,000	150,000	-	150,000

Santitation Summary

Participant Share	Carryforward	FY 23-24 Appropriations	FY 23-24 Budget
LVMWD Share Amount	9,398,558	19,221,478	28,620,036
TWSD Share Amount	4,527,223	8,004,412	12,531,635
Project Totals	13,529,561	27,225,890	41,151,671

Las Virgenes-Triunfo Joint Powers Authority
Capital Improvement Project Detail Fiscal Year 2023-24

Recycled Water

RW Reservoir #2 Storm Repairs and Inflow Problems - NEW

Project Manager	Priority	Project to Date Expenditures	Project to Date Appropriations	Carryforward
Johnson	1	-	-	-

Project Description:

Improve water quality in Reservoir 2 by upgrading infiltration trench and catch basin discharging directly into reservoir 2. Sedimentation basins will also be regraded to match the original design to capture sediment runoff prior to discharging into reservoir 2.

Recycled Water Replacement Fund	FY 23-24 Appropriations	FY 23-24 Budget	Future Year Appropriations	Project Total
LV Share Amount (70.6%)	74,554	74,554	-	
TWSD Share Amount (29.4%)	31,046	31,046	-	
Project Totals	105,600	105,600	-	105,600

Recycled Water Summary

Participant Share	Carryforward	FY 23-24 Appropriations	FY 23-24 Budget
LVMWD Share Amount	-	74,554	74,554
TWSD Share Amount	-	31,046	31,046
Project Totals	-	105,600	105,600

TOTAL CIP PROJECTS - JPA

Participant Share	Carryforward	FY 23-24 Appropriations	FY 23-24 Budget
LVMWD Share Amount	9,398,558	19,296,032	28,694,590
TWSD Share Amount	4,527,223	8,035,458	12,562,681
Project Totals	13,925,781	27,331,490	41,257,271

FY 2023/24 BUDGET

Joint Powers Authority

June 5, 2023

JPA Budget FY2023/24

- Total Budget
  - Fiscal Year 2023-24 $65.7 M
- Operating Budget
  - Fiscal Year 2023-24 $24.4 M

FY 2023-24 Allocated Net Expense

Las Virgenes - Triunfo
Joint Powers Authority
Allocated Net Expense Summary
(Dollars in Thousands)

	FY 23-24 Budget
JPA Revenues	2,799
JPA Expenses	24,407
Net Operating Expense	21,608

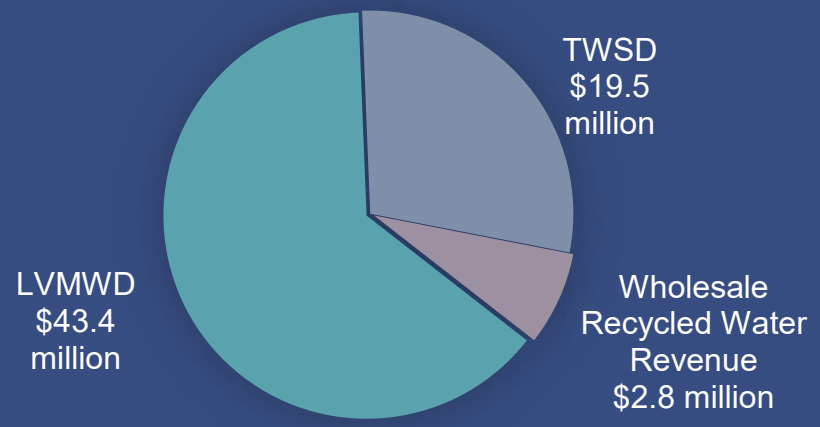
Las Virgenes Municipal Water District	14,691
Triunfo Water & Sanitation District	6,917
Total Allocated Expenses	21,608

Recycled Water Wholesale Rates

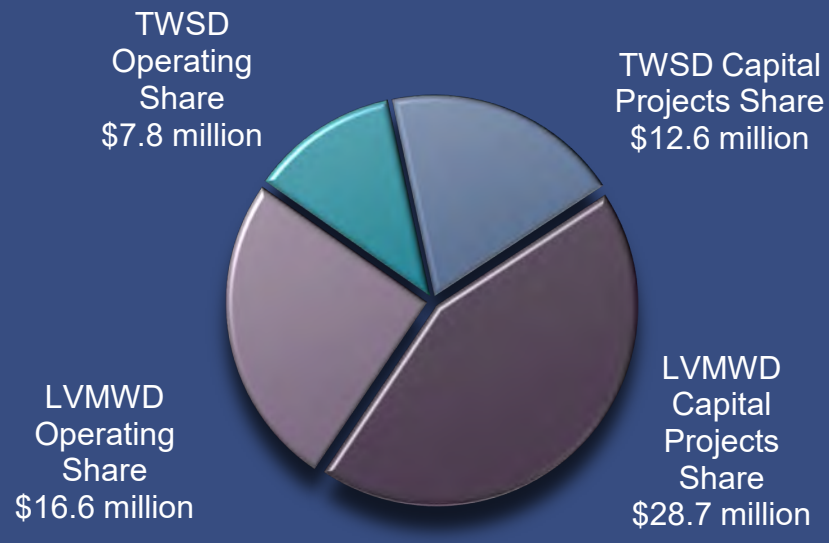
FY Budget 2023-24 - $579.44

FY 2023-24 Sources / Uses

SOURCES OF FUNDS
$65.7 million



USES OF FUNDS
$65.7 million



CIP Budget

- Total Fiscal Year Budget $41.3 M
  - FY2022-23 Carryforward 13.9 M
  - FY23-24 Appropriations 27.4 M

Recommendation

- Adopt Fiscal Year 2023-24 JPA Budget

AGENDA ITEM NO. 6.C

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: Engineering and External Affairs

SUBJECT: Malibou Lake Siphon Replacement Project: Adoption of Mitigated Negative Declaration and Authorization of Call for Bids

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SUMMARY:

On February 7, 2022, the JPA Board authorized a professional services agreement with HDR, Inc. (HDR) to perform an investigation and design of the Malibou Lake Siphon Replacement Project. The scope of work generally included the video inspection and design work to rehabilitate or replace the existing siphon. As part of the professional services, HDR contracted with Padre Associates, Inc. (Padre) for environmental services, including drafting and filing the environmental documents required pursuant to the California Environmental Quality Act (CEQA). A Mitigated Negative Declaration (MND) was completed by Padre in March 2023 with a 30-day public comment period from March 24, 2023, through April 28, 2023. During the comment period, the California Department of Fish and Wildlife (CDFW) provided formal comments. The MND, including a response to CDFW's comments, is now complete and recommended for adoption.

The bid package for the project is near completion. The construction work is likely to affect members of the Malibou Lake Mountain Club (MLMC), so staff is currently working closely with MLMC representatives to finalize several measures to address their concerns. Staff has met several times with MLMC Board Members to understand their concerns related to the project. Most recently, staff presented an updated design to the MLMC at their monthly Board Meeting on May 16, 2023, and expressed the JPA's commitment to address their concerns. Staff is also working diligently to acquire all necessary permits required for the project prior to construction. At this time, staff recommends authorization to issue a call for bids for the Malibou Lake Siphon Replacement Project immediately following completion of the bid package to allow the project to move forward expeditiously.

RECOMMENDATION(S):

Adopt the Mitigated Negative Declaration, authorize the Administering Agent/General Manager to execute and file a Notice of Determination with the Los Angeles County Clerk and authorize the issuance of a call for bids for the Malibou Lake Siphon Replacement Project.

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

There is a minimal financial impact associated with these actions. There is a $75 filing fee with the County Clerk of Los Angeles, and a $2,764 fee for the California Department of Fish and Game for filing of an MND/Notice of Determination. Sufficient funding is available in the adopted Fiscal Year 2022-23 JPA Budget.

DISCUSSION:

Background:

The existing sewer siphon structure at Malibou Lake was constructed around 1967 and consists of three steel pipes that are 10-inch, 14-inch and 24-inch in diameter. Record drawings indicate the pipes are encased in concrete on three sides but were laid on bare ground perhaps without proper bedding material. From manhole-to-manhole, the siphon is approximately 134-feet long and 19-feet below grade at its lowest point. Video observations from the inlet manhole indicate the 24-inch pipeline is largely obstructed, and recent attempts by staff to clean and inspect the pipelines were unsuccessful. Furthermore, there is infiltration from groundwater into the siphon at the inlet manhole that prevents dewatering of the pipelines, and it appears there is buckling in the 24-inch pipeline.

During routine inspection and cleaning of the trunk sewer collection system, damage was observed in the siphon conveying flow across Medea Creek at the inlet of Malibou Lake. In addition, corrosion of the inlet and outlet siphon manholes were observed due to the off gas as the flow passes through the siphon. Staff worked to identify the extent of the damage to the siphon; however, it was determined that the damage was great enough that it was beyond the internal capabilities of the JPA to affect a repair and that outside help would be needed to bring the siphon back into full working condition.

While staff confirmed that there is no evidence of exfiltration and that flow is still being conveyed through the smaller pipelines that comprise the siphon, it is imperative that the larger 24-inch siphon be addressed quickly to avoid any further damage or the possibility of a spill. Flow meters have been installed on the upstream and downstream sides of the existing siphon to monitor flow conditions and notify staff of a potential sanitary sewer overflow. An emergency response plan has also been developed and on-call contractors are available to mobilize expeditiously in the event conditions deteriorate and a sanitary sewer overflow event becomes eminent. The design proposes to demolish the existing siphon and construct a new siphon. It is anticipated that work would occur during the summer months when lower flows in the sewer are observed.

Coordination with Malibou Lake Mountain Club:

The bid package for the project is near completion. The construction work is likely to affect members of the Malibou Lake Mountain Club (MLMC), so staff is currently working closely with MLMC representatives to finalize several measures to address their concerns. Staff has met several times with MLMC Board Members to understand their concerns related to the project. Most recently, staff presented an updated design to the MLMC at their monthly Board Meeting on May 16, 2023, and expressed the JPA's commitment to address their concerns. Staff is also working diligently to acquire all necessary permits required for the project prior to construction to allow the project to move forward expeditiously.

Environmental Review and Documentation:

The California Environmental Quality Act (CEQA) generally requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects and reduce those environmental impacts to the extent feasible. The laws and rules governing the CEQA process are contained in the CEQA statutes (Public Resources Code Section 21000, et seq.), CEQA Guidelines (California Code of Regulations, Title 14, Section 15000, et seq.), published court decisions interpreting CEQA and locally-adopted CEQA procedures. The CEQA Initial Study/Environmental Checklist indicated that the proposed project would not have significant adverse effects on the environment. Mitigation measures were incorporated into the project specifications to ensure that any potential impacts would remain "less than significant" as noted in the environmental document.

In conformance with the requirements of California Public Resources Code Section 21080.3.1 (Assembly Bill No. 52), the JPA also conducted consultations with California Native American tribes in the geographic area. Consultation notices were provided to the Fernando Tataviam, Gabrieleno Band and Torres Martinez Tribes. No comments were received from the listed tribes.

Approximately 50 *Notices of Intent to Adopt a Mitigated Negative Declaration* were sent to public agencies and residents for the 30-day comment period from March 24, 2023, through April 28, 2023. There was one comment letter submitted the CDFW. These comments were reviewed and, where applicable, addressed in the final version of the CEQA document. CDFW's comments were to ensure that mitigation measures are in place prior to and during construction to protect local habitat and wildlife. Copies of CDFW's comments and the JPA's response are included in the MND. No comments pertaining to environmental impacts, other than concerns from the MLMC, were received. The main concerns from expressed by the MLMC pertain to noise, duration of construction, construction impacts to special events and permanent easement requirements.

Conclusion/Recommendation:

Staff recommends adopting the MND and authorizing the Administering Agent/General Manager to execute and file a Notice of Determination with the County Clerk of Los Angeles County. Attached for reference are copies of the public notices that were distributed for the MND and proposed Notice of Determination. Additionally, staff recommends authorization to issue a call for bids immediately following completion of the bid package to allow the project to move forward expeditiously.

GOALS:

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Alex Leu, Senior Engineer

ATTACHMENTS:
Notice of Intent to Adopt a Mitigated Negative Declaration

Las Virgenes – Triunfo Joint Powers Authority
4232 Las Virgenes Road, Calabasas, CA 91302
818.251.2100

MALIBOU LAKE SIPHON REPLACEMENT PROJECT
NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

PROJECT DESCRIPTION: The Las Virgenes Municipal Water District and Triunfo Water & Sanitation District (Joint Powers Authority, JPA) proposes to replace the existing sewer siphon pipelines under Medea Creek at its confluence with Malibou Lake.

PROJECT LOCATION: The Project site is located at the Lake Vista Drive crossing of Medea Creek at its confluence with Malibou Lake in Agoura Hills, Los Angeles County, California.

PUBLIC COMMENT: The JPA is soliciting comments on the adequacy and completeness of the Mitigated Negative Declaration (MND). You may comment by submitting written or oral comments to the Project Manager identified below prior to the close of the public comment period on **April 28, 2023**. Due to the non-complex nature of this project, a separate environmental hearing will not be held.

PROJECT DETAILS: The project involves the replacement of the existing sewer siphon crossing with a new siphon directly north of the existing siphon alignment. The proposed replacement siphon crossing would consist of two high-density polyethylene (HDPE) pipelines (12-inch and 24-inch in diameter) encased in concrete. The replacement siphon crossing under Medea Creek would be approximately 150 feet long and include two new 10-foot-diameter pre-cast concrete sewer manholes to function as inlet and outlet structures. In addition, a 7-foot-diameter pre-cast concrete manhole is proposed on both sides of the replacement siphon crossing to connect to the existing sewer mains. A new 30-foot-wide permanent easement on APN 4462-004-032 along the replacement siphon crossing alignment would be acquired by the JPA.

Access roads composed of asphalt concrete would be provided to access the proposed siphon inlet and outlet manholes. The existing concrete-encased sewer siphon would be completely removed from the Medea Creek channel along with the existing inlet and outlet structures and backfilled with clean earth material to match the surrounding existing grades.

Construction is anticipated to start in 2023 or 2024 and require about six months to complete. Construction activities would be scheduled for the dry season to avoid high flows in Medea Creek and elevated lake levels.

ENVIRONMENTAL REVIEW FINDINGS: The JPA has prepared a Draft MND pursuant to Section 15073 of the State Guidelines for the Implementation of the California Environmental Quality Act (CEQA). Issuance of a MND affirms the JPA's opinion that potentially significant adverse impacts associated with the proposed project can be readily mitigated and that the project does not require the preparation of an Environmental Impact Report (EIR). The MND prepared for the project discusses potential impacts for identified subject areas. If you challenge this environmental document in court, you may be limited to raising only those issues raised by you or others in written correspondence or in hearings on the proposed project.

DOCUMENT AVAILABILITY: If a copy of MND is not attached, the Draft MND may be downloaded from the District's website: lvmwd.com.

HOW TO COMMENT: Comments should be provided to the Project Manager, Alex Leu, at 4232 Las Virgenes Road, Calabasas, (818) 251-2144, or at aleu@lvmwd.com, prior to the close of the public comment period on **April 28, 2023** at 5:00 p.m. Please limit comments to environmental issues such as cultural resources, biology, noise, etc. You will receive notice of the dates of future public hearings to consider project approval or denial.

Jane Nye
Chair, Las Virgenes-Triunfo
Joint Powers Authority
Chair, Triunfo Water & Sanitation District
Board of Directors

THIS NOTICE WAS POSTED
ON March 29 2023
UNTIL April 28 2023
REGISTRAR – RECORDER/COUNTY CLERK
t, Las V

2023 068337
FILED
Mar 29 2023
Dean C. Logan, Registrar-Recorder/County Clerk
Electronically signed by LAKEISHA MCCOY

FINAL
MITIGATED NEGATIVE DECLARATION

MALIBOU LAKE SIPHON REPLACEMENT PROJECT

SCH NO. 2023030553

Lead Agency:

LAS VIRGENES - TRIUNFO JOINT POWERS AUTHORITY
4232 LAS VIRGENES ROAD, CALABASAS, CA 91302
(818) 251-2200

Contact: Mr. Alex Leu

Prepared by:

Padre Associates, Inc.
1861 Knoll Drive
Ventura, CA 93003
(805) 644-2220

May 2023

Project No. 2202-1151

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FINAL MITIGATED NEGATIVE DECLARATION FOR THE MALIBOU LAKE SIPHON REPLACEMENT PROJECT

PROJECT DESCRIPTION

Existing Facilities. Currently, a 10-inch, 14-inch and 24-inch diameter triple barrel sewer siphon (pipeline) transports municipal wastewater under Medea Creek at its confluence with Malibou Lake. The sewer siphon crossing is located about 15 feet north of the Lake Vista Drive bridge, spanning about 130 feet from a buried concrete inlet structure near the west bank of Medea Creek to a buried concrete outlet structure near the east bank of Medea Creek. The inlet and outlet structures are connected to access manholes located on or adjacent to Lake Vista Drive by buried sewer pipelines (see existing siphon on Figure 1).

Project Components. The project involves the replacement of the existing sewer siphon crossing directly north of the existing siphon alignment. The proposed replacement siphon crossing would consist of two high-density polyethylene (HDPE) pipelines (12-inch and 24-inch diameter) encased in concrete. The replacement siphon crossing under Medea Creek would be approximately 150 feet long and include two new 10-foot-diameter pre-cast concrete sewer manholes to function as inlet and outlet structures. In addition, a 7-foot-diameter pre-cast concrete manhole is proposed on both sides of the replacement siphon crossing to connect to the existing sewer pipelines. The proposed connection manholes would connect to the proposed inlet and outlet manholes with a 19 foot-long 36-inch diameter HDPE sewer pipe on the west side and a 64-foot-long 36-inch diameter HDPE sewer pipe on the east side (see Figure 1). A new 30-foot-wide permanent easement on APN 4462-004-032 along the replacement siphon crossing alignment would be acquired by the District.

Access roads composed of asphalt concrete would be provided to access the proposed siphon inlet and outlet manholes (see Figure 1). On the west side, the proposed asphalt access road would connect to Lake Vista Drive at the existing unpaved Medea Creek west bank access gate and would extend to include the existing bank access road up to the proposed siphon inlet manhole location. On the east side, the proposed asphalt access road would connect to a paved portion of Laguna Circle Drive north of the existing motorized sliding access gate and extend about 80 feet west to the proposed siphon outlet manhole location.

The existing concrete-encased triple barrel sewer siphon would be completely removed from the Medea Creek channel along with the existing inlet and outlet structures and backfilled with clean earth material to match the surrounding existing grades. However, the District is considering abandonment of the existing sewer siphon in place, which would consist of removal of the top five feet of the existing inlet and outlet structures and filling the existing siphon pipes with lean cement.

Construction is anticipated to start in 2023 or 2024 and require about six months to complete. Construction activities would be scheduled for the dry season to avoid high flows in Medea Creek and elevated lake levels.

PROJECT LOCATION

The Project site is located at the Lake Vista Drive crossing of Medea Creek at its confluence with Malibou Lake, Los Angeles County, California (see Figure 1 inset map). The Project site is located on Assessor's Parcel Number (APN) 4462-004-032 within the County's Santa Monica Mountains North Area Plan planning area.

PROJECT PROPONENT AND LEAD AGENCY

Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, California 91302

Contact: Alex Leu, Project Manager

PROPOSED FINDINGS

The Las Virgenes Municipal Water District (District) has prepared this Mitigated Negative Declaration (MND) pursuant to Sections 15070-15075 of the State Guidelines for the Implementation of the California Environmental Quality Act. This Mitigated Negative Declaration documents the District's finding that there are no significantly adverse unavoidable impacts associated with the proposed project, and the project does not require the preparation of an Environmental Impact Report (EIR). The attached Initial Study identifies and discusses potential impacts, mitigation measures and residual impacts for identified subject areas.

PUBLIC COMMENTS

In compliance with Section 15073 of the State Guidelines for the Implementation of the California Environmental Quality Act, the District accepted written comments on the adequacy of the information contained in the Draft MND between March 23 and April 28, 2023. Responses to comments received are provided as Appendix C to this Final IS/MND

MITIGATION MEASURES

The following mitigation measures have been integrated into the proposed project and would reduce impacts to a level of less than significant.

Air Quality

MM AQ-1. Relevant SCAQMD Rule 403 best available control measures (Table 1 of the Rule) shall be incorporated into the Project to minimize construction-related fugitive dust generation and adverse effects on the public.

MM AQ-2. Stockpiled streambed and lake sediment shall be covered to reduce odors. Fish stranded in the dewatered work area shall be captured using seines as the area is pumped dry and relocated to adjacent portions of Malibou Lake as dewatering progresses. This measure may be implemented simultaneously with mitigation measure **MM BIO-1**.

Biological Resources

MM BIO-1. Dewatering of the lakebed following installation of the cofferdams shall be monitored by a qualified biologist. The dewatering pump intake shall have a 0.5-inch (or smaller) mesh screen to prevent entrainment of two-striped garter snake. A qualified biologist shall use a seine (or appropriate hand-held nets) to capture any two-striped garter snakes in the dewatered area and relocate them to suitable habitat along the lake shoreline at least 500 feet from the work area.

Archaeological Resources

MM CR-1. The following mitigation measures are consistent with the guidelines of the State Office of Historic Preservation and shall be incorporated into the Project to prevent significant impacts, should resources be found during excavation.

- A worker cultural resources sensitivity program shall be implemented prior to construction at the Project site. Prior to any ground-disturbing activity, a qualified archeologist shall provide an initial sensitivity training session to all affected contractors, subcontractors, and other workers, with subsequent training sessions to accommodate new personnel becoming involved in Project construction. The sensitivity program shall address the cultural sensitivity of the area and how to identify these cultural resources, specific procedures to be followed in the event of an inadvertent discovery, and consequences in the event of non-compliance.
- Should any buried archaeological materials be uncovered during Project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.
- If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and deposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.

Noise

MM N-1. A minimum 10-foot-tall temporary sound wall (with a sound transmission class of STC-30 or better, minimum sound transmission loss of 11 dB at 63 hertz) shall be installed along the top of the east bank of Medea Creek to reduce noise impacts to the adjacent residence. The sound wall shall extend from Lake Vista Drive approximately 200 feet to the north and located to not prevent access to the adjacent residence. The sound wall may be removed following completion of siphon installation (when equipment activity and noise levels are reduced) to allow construction of the eastern access road and connection manholes, and installation of tie-in pipes.

MM N-2. The sewer bypass pump shall be located below grade or surrounded with acoustic shielding. The electrical generator powering the pump shall be provided with a factory-supplied sound attenuated enclosure.

MITIGATION MONITORING AND REPORTING

Section 15074(d) of the State Guidelines for the Implementation of the California Environmental Quality Act and Section 21081.6 of the Public Resources Code, requires the lead agency (District) to adopt a monitoring program to ensure mitigation measures are complied with during implementation of the project. In compliance with these requirements, a Mitigation Monitoring Program Implementation Table is provided below. This Table identifies the timing, monitoring methods, responsibility and compliance verification method for all mitigation measures identified in this MND. Monitoring would be conducted by the District's construction manager and qualified specialists under contract to the District.

MALIBOU LAKE SIPHON REPLACEMENT PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
AIR QUALITY								
MM AQ-1. Relevant SCAQMD Rule 403 best available control measures (Table 1 of the Rule) shall be incorporated into the Project to minimize construction-related fugitive dust generation and adverse effects on the public.	Throughout the construction period	The construction manager will ensure the measures are implemented	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			
MM AQ-2. Stockpiled streambed and lake sediment shall be covered to reduce odors. Fish stranded in the dewatered work area shall be captured using seines as the area is pumped dry and relocated to adjacent portions of Malibou Lake as dewatering progresses. This measure may be implemented simultaneously with mitigation measure **MM BIO-1**.	Throughout the construction period	The construction manager will ensure the measures are implemented	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			
BIOLOGICAL RESOURCES								
MM BIO-1. Dewatering of the lakebed following installation of the cofferdams shall be monitored by a qualified biologist. The dewatering pump intake shall have a 0.5-inch (or smaller) mesh screen to prevent entrainment of two-striped garter snake. A qualified biologist shall use a seine (or appropriate hand-held nets) to capture any two-striped garter snakes in the dewatered area and relocate them to suitable habitat along the lake shoreline at least 500 feet from the work area.	During dewatering	The construction manager will ensure the measures are implemented	Daily during dewatering	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			
CULTURAL RESOURCES								
MM CR-1. A worker cultural resources sensitivity program shall be implemented prior to construction at the Project site. Prior to any ground-disturbing activity, a qualified archeologist shall provide an initial sensitivity training session to all affected contractors, subcontractors, and other workers, with subsequent training sessions to accommodate new	Throughout the construction period	The construction manager will ensure the sensitivity training program is fully implemented	Initially prior to ground disturbance, and as new workers are assigned to construction tasks	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
personnel becoming involved in Project construction. The sensitivity program shall address the cultural sensitivity of the area and how to identify these cultural resources, specific procedures to be followed in the event of an inadvertent discovery, and consequences in the event of non-compliance.								
Should any buried archaeological materials be uncovered during Project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.	Throughout the construction period	The construction inspector will observe work in progress and ensure work is suspended as appropriate, the District project manager will ensure evaluation of the find is completed	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			

MALIBOU LAKE SIPHON REPLACEMENT PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and deposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.	Throughout the construction period	The construction inspector will observe work in progress and ensure work is suspended as appropriate, the District project manager will notify the coroner	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			
NOISE								
MM N-1. A minimum 10-foot-tall temporary sound wall (with a sound transmission class of STC-30 or better, minimum sound transmission loss of 11 dB at 63 hertz) shall be installed along the top of the east bank of Medea Creek to reduce noise impacts to the adjacent residence. The sound wall shall extend from Lake Vista Drive approximately 200 feet to the north and located to not prevent access to the adjacent residence. The sound wall may be removed following completion of siphon installation (when equipment activity and noise levels are reduced) to allow construction of the eastern access road and connection manholes, and installation of tie-in pipes.	During siphon replacement activities	The construction manager will ensure the measures are implemented	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			
MM N-2. The sewer bypass pump shall be located below grade or surrounded with acoustic shielding. The electrical generator powering the pump shall be provided with a factory-supplied sound attenuated enclosure.	Throughout the construction period	The construction manager will ensure the measures are implemented	Initially and weekly thereafter	Las Virgenes Municipal Water District	District staff will document compliance in construction progress reports			

1.0 INTRODUCTION

1.1 PURPOSE AND LEGAL AUTHORITY

This Initial Study has been prepared for the Malibou Lake wastewater siphon replacement project (Project), which is intended to terminate infiltration of lake water into the siphon and prevent potential discharges associated with pipe failure. Section 2.0 of this document provides a description of the Project. Section 2.0 of this document provides a description of the Project. The Las Virgenes Municipal Water District (District) is the "lead agency" for the Project. As defined by Section 15367 of the California Environmental Quality Act (CEQA) Guidelines, the lead agency is "the public agency which has the principal responsibility for carrying out or approving a project that may have a significant impact on the environment." Based on the findings of the Impact Analysis (Section 3.0 of this Initial Study), it has been determined that the Project (with mitigation) would not have a significant impact on the environment. As such, a Mitigated Negative Declaration has been prepared for the Project in accordance with CEQA.

1.2 PROJECT PROPONENT AND LEAD AGENCY

Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, California 91302

Contact: Alex Leu, Project Manager

1.3 PROJECT LOCATION

The Project site is located at the Lake Vista Drive crossing of Medea Creek at its confluence with Malibou Lake, Los Angeles County, California (see Figure 1 inset map). The Project site is located on Assessor's Parcel Number (APN) 4462-004-032 within the County's Santa Monica Mountains North Area Plan planning area. Photographs of the Project site are provided as Figure 4.

1.4 PROJECT BACKGROUND

Formed in 1958, the District is a municipal water district organized and operating pursuant to California Water Code Sections 71000 et seq. A Board of Directors elected by the District for four-year term governs the District. The District provides potable water, wastewater treatment, recycled water and biosolids composting to more than 70,000 people.

The District through a Joint Powers Agreement (JPA) with Triunfo Water and Sanitation District also operates a municipal wastewater collection system and treatment plant (Tapia Water Reclamation Facility) and distributes recycled water. The system begins at the Tapia Water Reclamation Facility (Tapia), where wastewater is treated to a high level, allowing it to be distributed for non-potable uses such as landscape irrigation and various commercial uses. The JPA also owns and operates a distribution system, consisting of pipelines, pump stations, tanks and reservoirs, and associated appurtenances to deliver the recycled water to areas of Los Angeles and Ventura counties.

The affected sewer pipeline transports municipal wastewater from the Agoura Hills area southeast to the Tapia Water Reclamation Facility, and crosses under Medea Creek at its confluence with Malibou Lake. The existing pipe crossing (siphon) was constructed around 1967 and consists of three steel pipes, 10-inch, 14-inch and 24-inch diameter. Record drawings indicate the pipes are encased in concrete on three sides, but were laid on bare ground, perhaps without proper bedding material. From manhole-to-manhole, the siphon is 134-feet long and is 19-feet below grade at its lowest point.

1.5 PURPOSE AND NEED

Observations from the siphon inlet structure indicates the 24-inch pipeline is largely plugged and recent attempts by the District to clean and inspect the pipelines have been unsuccessful. Video inspection indicates the 24-inch pipeline is buckling inward. Additional damage is suspected elsewhere in the pipelines, which cannot be currently inspected. Significant risks exist that the siphon pipes may collapse or become blocked, resulting in a potential spill. While District staff has confirmed there is no evidence of exfiltration and that flow is still being conveyed through the smaller pipelines that comprise the siphon, it is imperative that the larger 24-inch siphon be addressed quickly to avoid any further damage or the possibility of a spill. Flow meters have been installed on the upstream and downstream sides of the existing siphon to monitor flow conditions and notify staff of a potential sanitary sewer overflow.

The purpose of the Project is to:

- Replace the existing siphon pipes to avoid the potential for wastewater discharge into surface waters.
- Provide for inspection and maintenance of the siphon.
- Eliminate any potential infiltration of surface water into the District's sewer collection system at this location.

1.6 PROJECT APPROVALS

Proposed construction activities and operation of improvements would require the following permits and/or agency consultation:

- Construction activities would require coverage under the General Permit for Discharges of Storm Water Associated with Construction and Land Disturbance Activities from the California Regional Water Quality Control Board, Los Angeles Region. However, this is not a discretionary action, and the Regional Board would not be considered a responsible agency under CEQA.
- Project-related construction activities would be subject to best management practices for the Development and Construction Program of the Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County (Order No. R4-2012-0175 as amended by State Water Board Order WQ 2015-0075). However, this is not a discretionary action, and the Regional Board would not be considered a responsible agency under CEQA.

- Construction activities within Medea Creek/Malibou Lake would require a streambed alteration agreement with the California Department of Fish and Wildlife (CDFW). This is a discretionary action, and the CDFW would be considered a responsible agency under CEQA.
- Construction activities within Medea Creek/Malibou Lake would occur within waters of the U.S. and require a water quality certification from the Regional Board under the Clean Water Act. This is a discretionary action, and the Regional Board would be considered a responsible agency under CEQA.
- Construction activities within Medea Creek/Malibou Lake would occur within waters of the U.S. and require a nationwide permit verification from the U.S. Army Corps of Engineers under the Clean Water Act.
- Construction activities within the public right-of-way of Lake Vista Drive would require a roadway encroachment permit from the Los Angeles County Department of Public Works. However, this is not a discretionary action, and Los Angeles County would not be considered a responsible agency under CEQA.

1.7 MITIGATION MONITORING PLAN

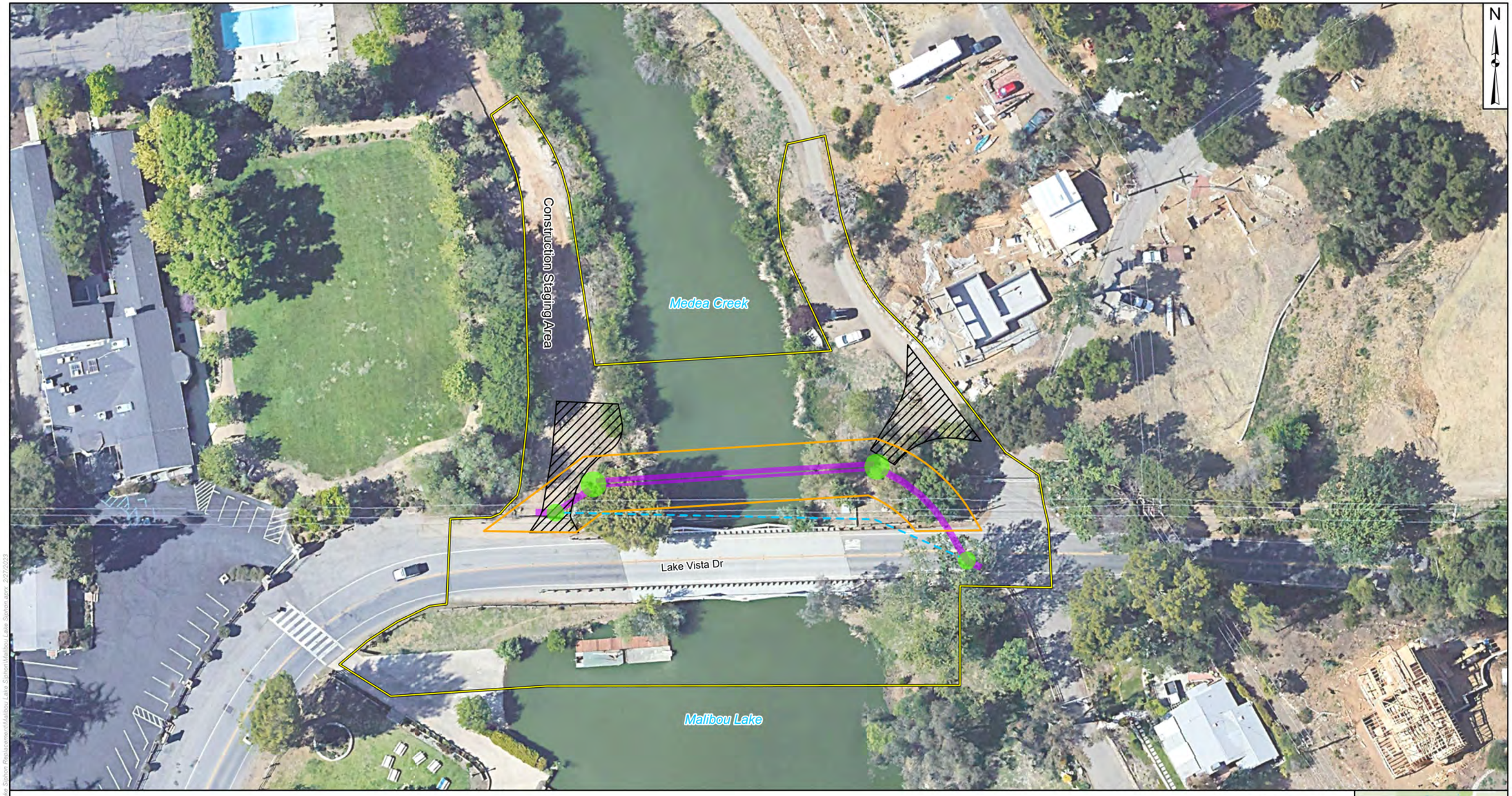
Pursuant to California Resources Code Section 21081.6, a Mitigation Monitoring Plan will be developed to ensure the implementation of mitigation measures necessary to reduce or eliminate identified significant impacts. The Plan will be reviewed and adopted by the District in conjunction with the findings required under CEQA.

1.8 ADOPTION OF THE FINAL MITIGATED NEGATIVE DECLARATION

The Draft MND was circulated for review by responsible agencies and interested members of the public between March 23 and April 28, 2023. Responses to comments received are provided as Appendix C to this Final IS/MND. At the time the Project is approved, the mandated CEQA Findings and a Mitigation Monitoring Plan will be adopted. The District is the lead agency and has the responsibility of determining the adequacy of the MND pursuant to CEQA.

1.9 PREPARERS OF THE INITIAL STUDY

This document was prepared for the District by Matt Ingamells, Rachael Letter, Lucas Bannan and Maribel Sandoval of Padre Associates, Inc.



LEGEND:

- Proposed Manhole
- Proposed Siphon and Tie-in Pipes
- Construction Footprint
- Proposed Permanent Easement
- Proposed Access Road
- Existing Siphon

MAP EXTENT:

0 25 50
FEET

Source: Google Earth Imagery
Coordinate System:NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MALIBOU LAKE SIPHON REPLACEMENT
LOS ANGELES COUNTY, CA

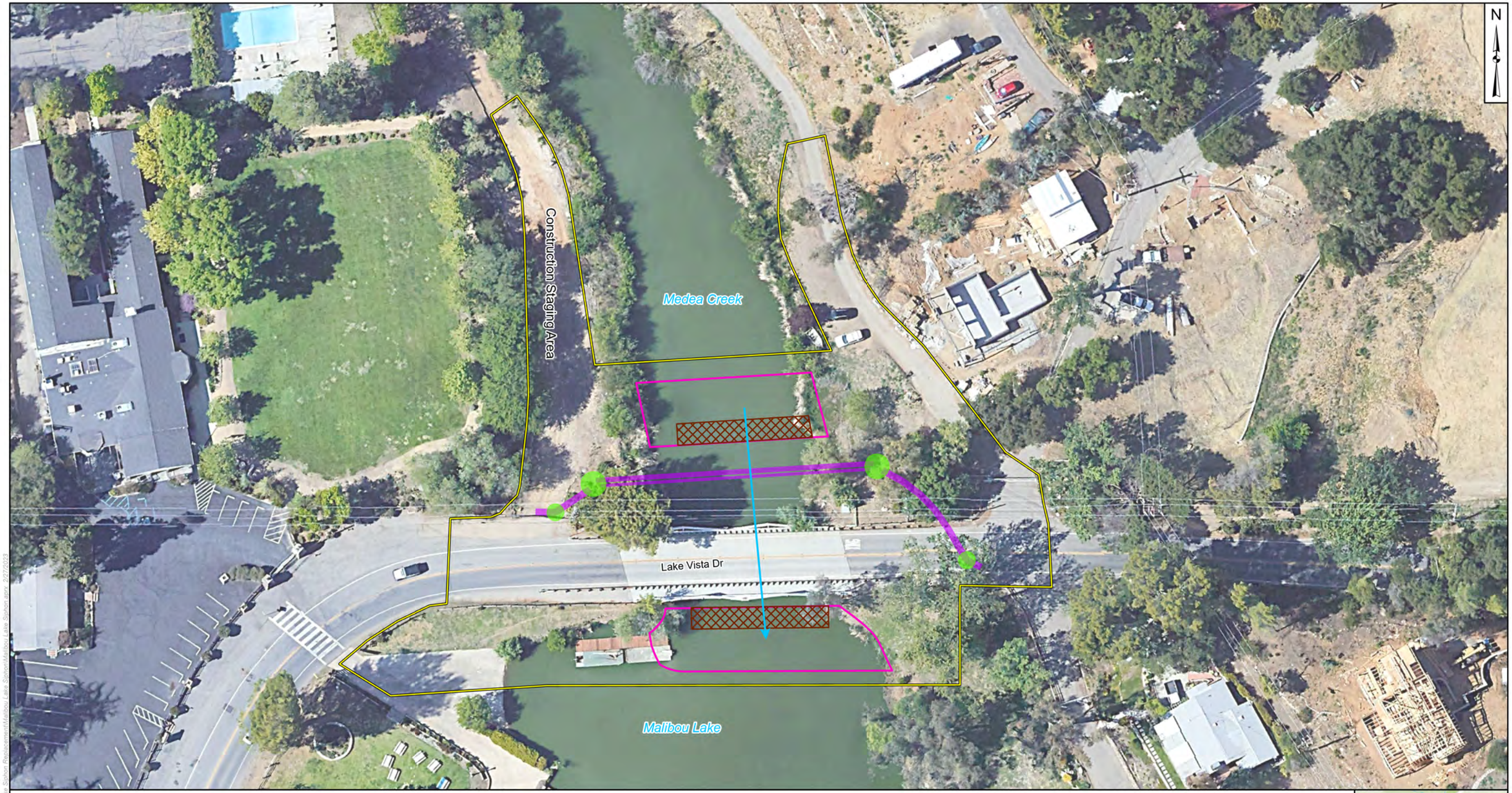
PROJECT NUMBER: 2202-1151

DATE: February 2023

IMPACT FOOTPRINT MAP

FIGURE 1

Z:\GIS Projects\GIS Maps\Maps Project\Malibou Lake Siphon Replacement\Malibou Lake Siphon\Malibou Lake Siphon.aprx 2/27/2023



LEGEND:

- Proposed Siphon and Tie-in Pipes
- Bypass Pipe
- Cofferdam Frame Structure
- Proposed Manhole
- Cofferdam Fabric Membrane
- Construction Footprint

MAP EXTENT:

0 25 50
FEET

Source: Google Earth Imagery
Coordinate System:NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

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PROJECT NAME: MALIBOU LAKE SIPHON REPLACEMENT
LOS ANGELES COUNTY, CA

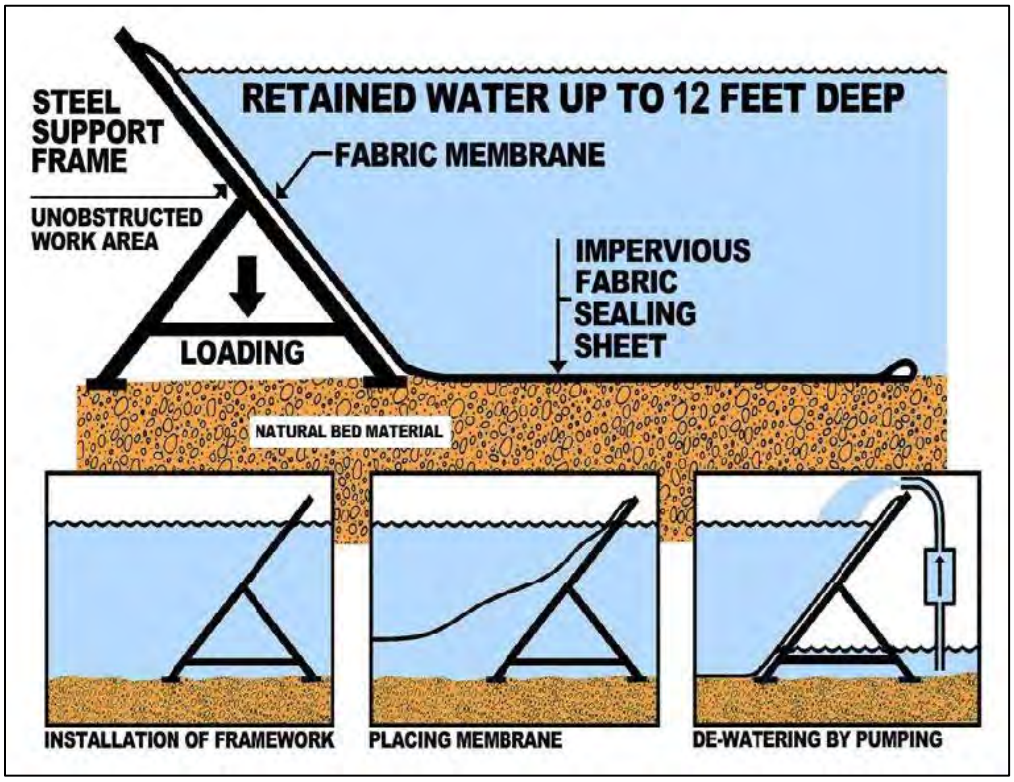
PROJECT NUMBER: 2202-1151

DATE: February 2023

LAKE DEWATERING PLAN

FIGURE 2

Z:\GIS Projects\GIS Maps\Map Project\Malibou Lake Siphon Replacement\Malibou Lake Siphon\Malibou Lake Siphon.aprx 2/27/2023



a. Example cofferdam system side view

b. Example installed cofferdam system

EXAMPLE COFFERDAM SYSTEM LAYOUT
FIGURE 3

a. Proposed siphon alignment north of the Lake Vista Drive bridge

b. Proposed construction staging area west of Medea Creek

c. Proposed sewer bypass pipe alignment on bridge and shoulder

d. Proposed eastern access road and outlet manhole location

SITE PHOTOGRAPHS
FIGURE 4

2.0 PROJECT DESCRIPTION

2.1 EXISTING FACILITIES

Currently, a 10-inch, 14-inch and 24-inch diameter triple barrel sewer siphon (pipeline) transports municipal wastewater under Medea Creek at its confluence with Malibou Lake. The sewer siphon crossing is located about 15 feet north of the Lake Vista Drive bridge, spanning about 130 feet from a buried concrete inlet structure near the west bank of Medea Creek to a buried concrete outlet structure near the east bank of Medea Creek. The inlet and outlet structures are connected to access manholes located on or adjacent to Lake Vista Drive by buried sewer pipelines (see existing siphon on Figure 1).

2.2 PROJECT COMPONENTS

2.2.1 Replacement Sewer Siphon Crossing

The project involves the replacement of the existing sewer siphon crossing directly north of the existing siphon alignment. The proposed replacement siphon crossing would consist of two high-density polyethylene (HDPE) pipelines (12-inch and 24-inch diameter) encased in concrete. The replacement siphon crossing under Medea Creek would be approximately 150 feet long and include two new 10-foot-diameter pre-cast concrete sewer manholes to function as inlet and outlet structures. In addition, a 7-foot-diameter pre-cast concrete manhole is proposed on both sides of the replacement siphon crossing to connect to the existing sewer pipelines. The proposed connection manholes would connect to the proposed inlet and outlet manholes with a 19 foot-long 36-inch diameter HDPE sewer pipe on the west side and a 64-foot-long 36-inch diameter HDPE sewer pipe on the east side (see Figure 1).

A new 30-foot-wide permanent easement on APN 4462-004-032 along the replacement siphon crossing alignment would be acquired by the District.

2.2.2 New Access Roads

Access roads composed of asphalt concrete would be provided to access the proposed siphon inlet and outlet manholes (see Figure 1). On the west side, the proposed asphalt access road would connect to Lake Vista Drive at the existing unpaved Medea Creek west bank access gate and would extend to include the existing bank access road up to the proposed siphon inlet manhole location. On the east side, the proposed asphalt access road would connect to a paved portion of Laguna Circle Drive north of the existing motorized sliding access gate and extend about 80 feet west to the proposed siphon outlet manhole location.

2.2.3 Existing Sewer Siphon Removal

The existing concrete-encased triple barrel sewer siphon would be completely removed from the Medea Creek channel along with the existing inlet and outlet structures and backfilled with clean earth material to match the surrounding existing grades. However, the District is considering abandonment of the existing sewer siphon in place, which would consist of removal of the top five feet of the existing inlet and outlet structures and filling the existing siphon pipes with lean cement.

2.3 CONSTRUCTION

2.3.1 Work Area

All construction work would be located within temporary construction and permanent easements encompassing work areas required for the siphon crossing and manhole installation, dewatering and sewer bypass operations (see construction footprint on Figure 1). The work area includes a 200-foot-long portion of the existing paved and unpaved areas along the western and eastern banks of Medea Creek as construction staging areas. Temporary closure of both traffic lanes on Lake Vista Drive at the Medea Creek bridge would be required during some construction activities during work hours and traffic would be detoured. Traffic flow would be restored during non-construction work hours.

2.3.2 Temporary Sewer Bypass

A temporary sewer bypass pumping system would be installed to ensure sewer flows are not interrupted by Project construction activities and would be operating for about four months. A eight to 10-inch diameter sewer bypass pipeline would be installed mostly above-ground (would be buried where crossing Lake Vista Drive) and extend from just upstream of the Project site (west of Medea Creek) to existing Manhole 38E east of Medea Creek (see Figure 3.c). The above-ground portion of the sewer bypass pipeline would cross Medea Creek on the existing bridge structure and would be placed within the road traveled way against the existing guard rail on the south side of the bridge. The bypass pump would be located in the staging area located northwest of the bridge and driven by an electric motor powered by portable generators either alone or in combination with a connection to the nearby Southern California Edison power line. The sewer bypass pump would also be used to remove wastewater from the existing siphon crossing. All wastewater collected would be discharged to the District's sewer system at Manhole 38E at the southwest corner of Lake Vista Drive and East Lake Shore Drive.

2.3.3 Dewatering the Siphon Crossing Installation Work Area

Temporary cofferdams would be installed, and surface water pumped out to provide a dry work area for siphon crossing installation and removal of the existing siphon crossing (see example cofferdam system in Figure 3). The cofferdams would function as a water retention system. Two cofferdams would be installed, one within Medea Creek (upstream) and one within Malibou Lake (downstream). The cofferdams (Port-a-Dam, or equivalent) would consist of steel frames supporting a continuous-reinforced vinyl liner membrane. The support frames would be assembled in pairs onshore, then lowered into surface water using a boom truck onshore and moved in place by divers to produce a continuous barrier, upstream and downstream of the siphon crossing installation area. The steel frames are designed to be a free-standing structure with no anchoring into foundations. Barges powered by outboard motors (currently used for lake dredging) may be used to assist the drivers and boom trucks in placing the support frames and liner membrane.

The liner sections would also be prepared onshore and joined into the desired configuration. The assembled liner would be placed around the perimeter of the support frames and secured at the top of each frame pair location by divers. The liner would then be unrolled down the diagonal face of the support frames and extended out onto the existing streambed at the toe of the frame, then pulled horizontally out away from the toe to form a sealing apron. The support frame and lining system creates a retaining area that prevents surface water from entering the work zone. A gravity bypass pipe would be provided to convey surface flow through the streambed work area while the cofferdams are in place.

Once the cofferdams are in place, surface water present between the cofferdams would be pumped out to provide a dry work area. Surface water would be pumped using either electric or diesel-powered pumps discharging to the District's sewer system. The electric pump may be powered by a portable generator located in the onshore work area or by a connection to the nearby Southern California Edison power line. The diesel-powered pump would be located in the onshore work area with the suction inlet line extending into surface water. Once the streambed work area is dry, periodic pumping would be required to remove any water seeping from the cofferdams.

Once installation of the replacement siphon crossing and manholes and demolition and removal of the existing siphon and structures (see Section 2.3.4) is complete, the cofferdams would be removed. Removal would be conducted by divers, barges and boom trucks, by first unsealing the liner to allow the work area to be flooded, removal of the liner, support frames and bypass pipe.

2.3.4 Sewer Siphon Installation

Once the streambed work area is dry, a trench would be excavated along the replacement siphon crossing alignment, using an excavator and wheeled loaders. Streambed sediments would be temporarily stockpiled. The two siphon crossing pipelines would be pulled into the trench (separately) by a dozer as HDPE pipe segments are fused together onshore. Concrete would be pumped over and around the installed pipelines to form a concrete encasement within the streambed. Stockpiled native stream sediments would be backfilled over the installed pipeline and encasement and graded to produce a level surface. The banks of Medea Creek affected by siphon installation would be backfilled and graded to pre-project topographic contours.

The proposed four new manholes and pipe connections would be constructed following installation of the sewer bypass system. This would entail excavation of the manhole location, installation of the manholes, construction of internal components and connection to new and existing sewer pipes. The pipe connections between the proposed manholes would be installed by trenching, placement of pipe bedding, placement of pipe, backfill and pavement restoration.

2.3.5 Construction Equipment and Vehicles

Equipment and vehicles anticipated to be used for Project construction activities include excavators, backhoes, wheeled loaders, dump trucks, concrete mixing truck, paver, trench shoring equipment (such as slide rails, beams and plates, sheet piles), HDPE pipe cutters, HDPE pipe fusion machine, self-priming sump, and submersible pumps, suction/discharge hoses, flexible piping, steel plating, cofferdam support frames and liner; generators, high pressure wash sprayer, coating applicator and traffic control sign board.

2.3.6 Construction Schedule

Construction is anticipated to start in 2023 or 2024 and require about six months to complete. Construction activities would be scheduled for the dry season to avoid high flows in Medea Creek and elevated lake levels. The likely order of construction activities is:

- Install the sewer bypass system.
- Install both cofferdams and the surface flow bypass pipe.
- Demolish and remove the existing siphon crossing and inlet and outlet manholes.
- Construct the replacement siphon crossing.
- Construct inlet and outlet manholes.
- Remove both cofferdams and the surface flow bypass pipe.
- Construct connection manholes and install tie-in pipes.
- Construct manhole access roads.
- Remove the sewer bypass system.

2.4 OPERATION

Changes in operation of the siphon crossing will include periodic inspection and maintenance activities for cleaning the replacement siphon utilizing the new access roads. These activities will be similar to those previously used for the existing siphon crossing.

3.0 ENVIRONMENTAL IMPACT ANALYSIS

This section provides an assessment of the potential environmental impacts associated with the Project. The analysis is organized by environmental issue area (e.g., aesthetics, agricultural resources, air quality). Each issue area begins with a checklist, which identifies criteria that have been used to assess the significance or insignificance of each potential impact. The checklists used in this Initial Study were taken from the 2022 update to the State CEQA Guidelines prepared by the Association of Environmental Professionals. The checklists also indicate the conclusions made regarding the potential significance of each impact. Brief explanations of each conclusion are provided after the checklists.

Impact classifications used in the checklists are the following:

- **Potentially Significant Impact.** An impact that could be significant and requires further study in an Environmental Impact Report (EIR).
- **Less than Significant Impact with Mitigation.** An impact that is potentially significant but can feasibly be mitigated to a less than significant level with measures identified in the Initial Study.
- **Less than Significant Impact.** An impact that would not be significantly adverse.
- **No Impact.** Applied when the Project would not result in any impact to a specific issue area.

3.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urban areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Setting

The Project site is located in a rural/suburban setting, with single-family residences on small lots along the lakeshore. The Malibou Lake Mountain Club facilities are located on the west side of the Lake Vista Drive bridge and include a clubhouse, picnic area, boat launch and parking lot. These facilities provide a park-like visual character to the area. Mulholland Highway has been designated a scenic route by Los Angeles County and is located approximately 550 feet north of the construction footprint but is not visible from the Project site due to intervening vegetation. U.S. Highway 101 is located approximately 2.4 miles north of the Project site and is an eligible State Scenic highway.

The Cornell Sandstone Peaks scenic element as designated by Los Angeles County is located approximately 600 feet north of the proposed construction footprint but is not visible from the Project site due to intervening vegetation. Photographs of the Project site are provided as Figure 4.

3.1.2 Impact Analysis

a. The Project site is not visible from any public areas that also have views of the Cornell Sandstone Peaks. Therefore, temporary adverse effects on visual resources at the Project site would not affect any scenic vistas. Impacts to County-designated scenic corridors are addressed under checklist item c.

b. The nearest State-designated scenic highway is a segment of Topanga Canyon Boulevard (State Route 27) approximately 9.1 miles east-southeast of the Project site. The proposed Project would have no effect on this scenic highway.

c. The proposed Project involves removal of vegetation on the banks of Medea Creek and shoreline of Malibou Lake both upstream and downstream of the Lake Vista Drive bridge. The lakebed would be temporarily exposed, and soil stockpiles, materials and equipment would be visible to the public, including motorists on Lake Vista Drive. These industrial-like features and activities would alter the visual character of the Project site and temporarily degrade the visual quality of public views in the area. However, these impacts would be short-term (a few months) and would have a minimal effect on Malibou Lake and shoreline, which is the primary scenic element in the immediate Project area. The visibility of the Project site and associated visual impacts from Mulholland Highway would be limited to a short glimpse through intervening trees from the Medea Creek bridge and would not adversely affect public views. Overall, aesthetics impacts are considered less than significant.

d. The proposed Project does not include any lighting or glare-producing surfaces. Therefore, impacts are not anticipated.

3.1.3 Mitigation Measures and Residual Impacts

None required.

3.2 AGRICULTURAL AND FORESTRY RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. 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?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land, timberland or timberland zoned Timberland Production?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. 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?	☐	☐	☐	☒

3.2.1 Setting

Based on review of the California Important Farmland Finder provided by the California Department of Conservation, areas surrounding Malibou Lake support Urban and Built-Up Land and Other Land. The closest designated important farmlands are Prime farmland located approximately 2.5 miles to the east along Las Virgenes Road. There are no agricultural zoned parcels near the Project site.

The nearest forestland is located in the Angeles National Forest, approximately 24.5 miles to the north.

3.2.2 Impact Analysis

a. The proposed Project would not result in the conversion of farmland to non-agricultural use and no loss of farmland soils would occur.

b. The proposed Project would not conflict with any agriculturally zoned areas or any Williamson Act contracts.

c. The proposed Project would not conflict with any areas zoned for forestry and would not cause any forest land or timberlands to be rezoned.

d. The proposed Project would not result in the loss or conversion of forest land to non-forest uses.

e. Projects that involve public infrastructure (e.g., roads, power, water, sewer) in a previously undeveloped area may lead to inducement of population growth and associated conversion of agricultural lands or forest lands. The proposed Project is limited to improving the reliability of the municipal wastewater collection system with no increase in capacity and could not foster new development or population growth.

3.2.3 Mitigation Measures and Residual Impacts

None required.

3.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. 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?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) affecting a substantial number of people?	☐	☒	☐	☐

3.3.1 Setting

Climatological Setting. The Project area is characterized by cool winters and moderate summers typically tempered by cooling sea breezes. Summer, spring and fall weather is generally a result of the movement and intensity of the semi-permanent high-pressure area located several hundred miles to the west. Winter weather is generally a result of the size and location of low-pressure weather systems originating in the North Pacific Ocean.

The nearest climate data station to the Project site is located at Pierce College (Canoga Park), where the maximum average monthly temperature is 95.4 degrees Fahrenheit (°F) in August, and the minimum average monthly temperature is 38.8 °F in September. The average monthly precipitation ranges from 3.95 inches in February to 0.01 inches in July, with an average annual precipitation of 16.86 inches. Air quality in the region is directly related to air pollutant emissions and regional topographic and meteorological factors.

Criteria Pollutants. Criteria air pollutants are those contaminants for which State and Federal ambient air quality standards have been established for the protection of public health and welfare. Criteria pollutants include ozone (O_3) carbon monoxide (CO), oxides of nitrogen (NO_X), sulfur dioxide (SO_2), particulate matter with a diameter of 10 microns or less (PM_{10}) and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$).

Regulatory Overview. Air pollution control is administered on three governmental levels. The U.S. Environmental Protection Agency (USEPA) has jurisdiction under the Clean Air Act, the California Air Resources Board (CARB) has jurisdiction under the California Health and Safety Code and the California Clean Air Act, and local districts (South Coast Air Quality Management District [SCAQMD]) share responsibility with the CARB for ensuring that all State and Federal ambient air quality standards are attained.

CARB has divided the State into 15 air basins to better manage air pollution. Air basin boundaries were determined by grouping together areas with similar geographical and meteorological features. Political boundaries were also considered in determining the air basin boundaries. The proposed Project is located in the Los Angeles County portion of the South Coast Air Basin (SCAB), which encompasses Orange County and coastal portions of Los Angeles, San Bernardino, and Riverside counties.

The U.S. Environmental Protection Agency (USEPA) and CARB classify an area as attainment, unclassified, or nonattainment depending on whether the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively.

Air Quality Planning. Federal. The Federal government first adopted the Clean Air Act (CAA) in 1963 to improve air quality and protect citizens' health and welfare, which required implementation of the National Ambient Air Quality Standards (NAAQS). The NAAQS are revised and changed when scientific evidence indicates a need. The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The CAA Amendments of 1990 added requirements for states with non-attainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies.

The USEPA has been charged with implementing Federal air quality programs, which includes the review and approval of all SIPs to determine if they conform to the mandates of the CAA and its amendments, and to determine whether implementation of the SIPs will achieve air quality goals. If the USEPA determines that a SIP is inadequate, a Federal Implementation Plan that imposes additional control measures may be prepared for the non-attainment area. Failure to submit an approvable SIP or to implement the SIP within the mandated time frame may result in application of sanctions to transportation funding and stationary air pollution sources within the air basin.

Pursuant to the CAA, State and local agencies are responsible for planning for attainment and maintenance of the NAAQS. The USEPA classifies air basins (i.e., distinct geographic regions) as either "attainment" or "non-attainment" for each criteria pollutant, based on whether the NAAQS have been achieved. Some air basins have not received sufficient analysis for certain criteria air pollutants and are designated as "unclassified" for those pollutants. The SCAQMD and CARB are responsible agencies for providing attainment plans and for demonstrating attainment of these standards within the Project area.

State. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas to achieve and maintain attainment with the California Ambient Air Quality Standards (CAAQS) by the earliest possible date. The CCAA, enforced by CARB, requires that each area exceeding the CAAQS develop a plan aimed at achieving those standards. The California Health and Safety Code, Section 40914, requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the local air districts are required to develop and implement air pollution reduction measures, which are described in their clean air plans and incorporated into the SIP, and outline strategies for achieving the CAAQS for criteria pollutants for which the region is classified as non-attainment.

The SCAQMD completed its Final 2016 AQMP in March 2017, which indicates continued implementation of already adopted regulatory actions would reduce the 2012 baseline NO_x emissions from 522 tons per day to 255 tons per day by 2023. This NO_x emissions reduction appears sufficient to attain the 1-hour ozone standard by 2023, but not the 8-hour ozone standard. Therefore, additional control strategies and regulatory measures are proposed to meet the mandated attainment dates for the Federal 8-hour ozone standard. In addition, these NO_x emissions reductions are anticipated to result in attainment of $PM_{2.5}$ standards.

Attainment Status. The proposed Project is located in Los Angeles County within the SCAB. The Los Angeles County portion of the SCAB has been designated by CARB and USEPA as unclassified or in attainment of all criteria ambient air pollutant standards with the exception of:

- Federal 2015 8-hour ozone standard: non-attainment, classified as “extreme”.
- Federal 1-hour ozone standard: non-attainment, classified as “extreme”.
- Federal particulate matter less than 2.5 microns ($PM_{2.5}$) 24-hour standard: non-attainment, classified as “serious”.
- Federal 2012 $PM_{2.5}$ annual standard: non-attainment, classified as “serious”.
- California 8-hour ozone standard: non-attainment.
- California 1-hour ozone standard: non-attainment.
- California PM_{10} 24-hour and annual standards: non-attainment.
- California $PM_{2.5}$ annual standard: non-attainment.

The SCAQMD 2016 Air Quality Management Plan indicates mobile sources contributed about 88 percent of the total regional NO_x emissions in 2012.

Applicable Regulatory Requirements. The Portable Equipment Registration Program (PERP) establishes a uniform State-wide program to regulate portable engines and portable engine-driven equipment units. The term “portable” is defined as not residing at a location for more than 12 consecutive months. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts. To be eligible for the PERP, an engine must be certified to the current emission tier (non-road, on-highway or marine). The PERP does not apply to self-propelled equipment but would apply to engines used in stationary construction equipment.

Applicable SCAQMD rules and regulations are limited to:

- Rule 402 (Nuisance): This Rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury, or damage to business or property. This Rule would apply to fugitive dust generated during Project-related construction.
- Rule 403 (Fugitive Dust): This Rule prohibits the emissions of fugitive dust associated with construction activities (and other operations) such that the dust remains visible beyond the property boundary or the dust emissions exceed 20 percent opaDistrict (if the dust is the result of vehicle movement). Rule 403 also limits track-out of earth material onto adjacent streets and requires implementation of best available control measures.

Air Quality Monitoring. The air quality of the SCAB is monitored by a network of 43 stations operated by the SCAQMD. The Reseda monitoring station is the nearest station located within the SCAB approximately 14.1 miles northeast of the Project site. However, the Thousand Oaks monitoring station is located closer to the Project site and is more representative of the ambient air quality in the area. Table 1 lists the monitored maximum concentrations and number of exceedances of air quality standards at the Thousand Oaks monitoring station for the years 2019 through 2021. As shown in Table 1, ozone concentrations monitored at the Thousand Oaks monitoring station rarely exceed the State 1-hour standard (less than one day per year on average). The State 8-hour ozone standard was exceeded an average of 3.7 days per year from 2019 through 2021. $PM_{2.5}$ concentrations exceeded the Federal 24-hour standard at the Thousand Oaks monitoring station on only one day from 2019 through 2021.

Table 1. Summary of Data Collected at the Thousand Oaks Ambient Air Quality Monitoring Station

Parameter	Standard	Year		
		2019	2020	2021
Ozone – parts per million (ppm)				
Maximum 1-hr concentration monitored		0.082	0.097	0.077
Number of days exceeding CAAQS	0.095	0	1	0
Maximum 8-hr concentration monitored		0.074	0.084	0.073
Number of days exceeding 8-hour ozone CAAQS	0.070	2	7	2
$PM_{2.5}$ – micrograms per cubic meter ($\mu g/m^3$)				
Maximum 24-hour sample (National)		24.5	36.3	29.1
Number of samples exceeding NAAQS	35	0	1	0

Sensitive Receptors. Some land uses are considered more sensitive to air pollution than others due to population groups and/or activities involved. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present.

Recreational land uses may be considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

Residential land uses occur along the shore of Malibou Lake adjacent to the Project site. The nearest school is Agoura Hills High School, located approximately 2.8 miles to the north of the Project site.

3.3.2 Impact Analysis

The SCAQMD has adopted the following air pollutant significance thresholds to be used in CEQA documents:

Pollutant	Construction (pounds/day)	Operation (pounds/day)
NO_x	100	55
ROC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550

As part of the SCAQMD's environmental justice program, its staff has developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard and are developed based on the ambient concentrations of that pollutant for each source receptor area. The Project site is located within SRA 6 (West San Fernando Valley).

a. Projects that cause local populations to exceed population forecasts in the 2016 AQMP may be inconsistent, as exceeding population forecasts can result in the generation of air pollutant emissions beyond those which have been projected in the 2016 AQMP. The proposed Project would not increase access to undeveloped areas, extend infrastructure or otherwise induce land development or population growth. Overall, the proposed Project would have no effect on implementation of the 2016 AQMP and progress towards attainment of air quality standards.

b. For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the Project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD adopted significance thresholds. The proposed Project does not include any new land uses that may generate air pollutant emissions. In addition, the proposed Project would not increase wastewater treatment capacity that could induce population growth. Construction of the proposed Project would generate temporary air pollutant emissions, primarily exhaust emissions from heavy-duty trucks, worker vehicles and heavy equipment. Daily heavy equipment emissions were estimated using the CARB OFFROAD 2021 model. Emissions of on-road vehicles were estimated using CARB's EMFAC 2021 model (year 2023, Los Angeles County inputs). Peak day (siphon replacement) construction emissions have been estimated for comparison to the SCAQMD construction emissions thresholds (see Table 2).

Table 2. Peak Day Construction Air Pollutant Emissions

Source	Pollutant, Pounds per Peak Day			
	ROC	NO_x	CO	PM_{10}
Equipment exhaust	2.3	20.5	21.7	0.9
On-road vehicles	<0.1	0.9	0.8	0.1
Fugitive dust	0.0	0.0	0.0	9.9
Total	**2.3**	**21.4**	**22.5**	**10.9**
SCAQMD Significance Threshold	75	100	550	150
Localized Significance Threshold*	--	103	426	4.0

*SRA 6, one-acre work area, 25 meter receptor distance

Peak day construction PM_{10} emissions would exceed the applicable LST and are considered significant. The Project is subject to SCAQMD Rule 403 and best available control measures to minimize fugitive dust have been provided below as mitigation measures.

c. Residences located adjacent to the construction footprint may be considered sensitive receptors. Construction activities would generate fugitive dust and exhaust emissions. Project-related exposure of these sensitive receptors to air pollutants would be minimal due to the following factors:

- Air pollutant emission rates are relatively low.
- Air pollutant emissions would be short-term (a few months).
- Air pollutant emissions would be minimized through implementation of best available control measures required by SCAQMD Rule 403 to minimize fugitive dust (see Section 3.3.3).
- The ambient air quality in the local area (Santa Monica Mountains) is generally very good.

d. Excavation to install the replacement siphon and remove the existing siphon would expose streambed and lake sediments that may be odorous. In addition, fish left stranded in the dewatered work area would decompose and produce odors. These odors would be short-term but may cause annoyance to a considerable number of persons and violate SCAQMD Rule 402.

3.3.3 Mitigation Measures and Residual Impacts

MM AQ-1. Relevant SCAQMD Rule 403 best available control measures (Table 1 of the Rule) shall be incorporated into the Project to minimize construction-related fugitive dust generation and adverse effects on the public.

Implementation of these measures would reduce air quality impacts to a level of less than significant.

MM AQ-2. Stockpiled streambed and lake sediment shall be covered to reduce odors. Fish stranded in the dewatered work area shall be captured using seines as the area is pumped dry and relocated to adjacent portions of Malibou Lake as dewatering progresses. This measure may be implemented simultaneously with mitigation measure **MM BIO-1**.

Implementation of these measures would reduce odor-related air quality impacts to a level of less than significant.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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 Wildlife 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 and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

3.4.1 Setting

Significant Ecological Areas (SEA) and Open Space Areas. Los Angeles County has designated much of the Santa Monica Mountains within their jurisdiction as a significant ecological area. The Project site is located within the Santa Monica Mountains SEA.

Open space areas supporting substantial native vegetation and wildlife habitat occur within the Santa Monica Mountains SEA near the Project site including Malibu Creek State Park (to the east and south) and Paramount Ranch (part of the Santa Monica Mountains National Recreation Area, located to the north).

Botanical Resources. Botanical surveys of the Project site were conducted by Padre biologist Matt Ingamells on February 2, 2023. A total of 51 plant species were observed, including 17 native species (33 percent). Nineteen plant species listed as invasive by the California Invasive Plant Council were observed, including three species rated as highly invasive (freeway ice plant, pampas grass and English ivy), nine species rated as moderately invasive, and seven species considered to have limited invasiveness. A list of plant species observed at the Project site is provided as Appendix A.

Protected Oak Trees. Section 22.174.030 of the Los Angeles County Code of Ordinances prohibits damage or removal of oak trees with a single trunk circumference of 25 inches or more (8 inches in diameter), or two trunks with a combined circumference of at least 38 inches (12 inches in diameter). A heritage oak tree is considered as any oak tree with a diameter of 36 inches or more, or identified as having significant historical or cultural importance to the community. Oak trees at least 6 inches in diameter at breast height within the Santa Monica Mountains North planning area are also protected. Oak trees are not located in proximity to the Project site (construction footprint shown in Figure 1).

Vegetation. The area surrounding Malibou Lake burned in November 2018 as part of the regional Woolsey Fire. The Fire did not burn the Project site; however, several residences located east of the Project site were lost in this fire. The vegetation of the Project site has been mapped as S4 habitat in the Santa Monica Mountains North Area Plan indicating this area supports existing residential or commercial development, or other facilities or agricultural practices.

Excluding the banks of Medea Creek and shoreline of Malibou Lake, the entire Project site is developed (Lake Vista Drive, boat launch area, Laguna Circle Drive), supports landscaping (at Malibou Lake Mountain Club and east of the Lake Vista Drive bridge) or previously disturbed areas (proposed construction staging areas) with only scattered weedy plant species. Native vegetation is limited to linear strips of shrubby arroyo willow (*Salix lasiolepis*) and southern cattail (*Typha domingensis*) along the lower banks of Medea Creek and shoreline of Malibou Lake. A vegetation map is provided as Figure 5.

The linear strips of shrubby arroyo willows at the site, varying from about five to 25 feet in width may be classified as arroyo willow thicket as per A Manual of California Vegetation (Sawyer et al., 2009). Arroyo willow thickets have been assigned a State rarity ranking of S4, meaning this plant community is apparently secure, at a fairly low risk of extirpation due to its extensive range and/or many populations or occurrences.

The linear strips of southern cattail at the site, varying from about two to six feet in width may be classified as cattail marshes as per A Manual of California Vegetation (Sawyer et al., 2009). Cattail marshes have been assigned a State rarity ranking of S5, meaning this plant community is secure, at very low or no risk of extirpation due to its very extensive range and/or abundant populations or occurrences.

Wildlife Resources. Malibou Lake and adjacent portions of Medea Creek support non-native fish introduced for fishing, including bluegill, large-mouth bass, common carp and catfish. A wildlife survey of the Project site (with 100-foot buffer) was conducted on February 2, 2023. Wildlife observed were Canada goose, northern flicker, black phoebe, white-crowned sparrow, acorn woodpecker, Allen's hummingbird, Audubon's warbler, song sparrow, American crow, western scrub jay, oak titmouse, ruby-crowned kinglet, cedar waxwing, European starling, red-winged blackbird, and lesser goldfinch. Canada geese are abundant at Malibou Lake, and forage in grassy areas along the shoreline. A list of wildlife species observed at the Project site is provided as Appendix B.

Special-Status Species. Table 3 provides a summary of special-status plant and wildlife species reported within three miles of the Project site, based on review of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB), California Native Plant Society (CNPS) on-line inventory, and on-line search of the Consortium of California Herbaria (CCH) collections. Table 3 also includes the results of biological surveys conducted at Project site.

LEGEND:

- Construction Footprint
- AW Arroyo Willow Thicket
- C Cattail Marsh
- DW Developed (roadways, boat launch)
- D Disturbed
- L Landscaping (including trees, turfgrass)
- O Open Water

MAP EXTENT:

0 25 50
FEET

Source: Google Earth Imagery
Coordinate System:NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MALIBOU LAKE SIPHON REPLACEMENT LOS ANGELES COUNTY, CA
PROJECT NUMBER: 2202-1151
DATE: February 2023

VEGETATION MAP

FIGURE 5

Z:\GIS Projects\GIS Maps\Maps Project\Malibou Lake Siphon Replacement\Malibou Lake Siphon\Malibou Lake Siphon.aprx 2/28/2023

Table 3. Special-status Species Reported within Three miles of the Project Site

Common Name (*Scientific Name*)	Status	Nearest Report Location to the Project Site
Plants		
Malibu baccharis (*Baccharis malibuensis*)	List 1B	Paramount Ranch, 0.6 miles to the northwest (CNDDB, 2023)
Brewer's calandrinia (*Calandrinia breweri*)	List 4	Near Castro Peak, 2.0 miles to the south, collected 2005 (CCH, 2023).
Catalina mariposa lily (*Calochortus catalinae*)	List 4	Cornell Corners, 1.4 miles to the west-northwest, collected 1978 (CCH, 2023).
Plummer's mariposa lily (*Calochortus plummerae*)	List 4	Near Mulholland Highway, 2.4 miles to the west-southwest (CNDDB, 2023)
Slender mariposa lily (*Calochortus clavatus var. gracilis*)	List 1B	Cornell corners, 1.2 miles to the west-northwest, collected 1960 (CNDDB, 2023)
Santa Susana tarplant (*Deinandra minthornii*)	SR, List 1B	Near Castro Peak, 1.8 miles to the southwest (CNDDB, 2023)
Marcescent dudleya (*Dudleya cymosa ssp. marcescens*)	FT, SR, List 1B	Near Malibou Lake dam, 0.4 miles to the south-southwest (CNDDB, 2023)
Agoura Hills dudleya (*Dudleya cymosa ssp. agourensis*)	FT, List 1B	Near Kanan Road, 2.1 miles to the north (CNDDB, 2023)
Southern California black walnut (*Juglans californica*)	List 4	Common in the region, likely occurs along Medea Creek upstream of Mulholland Highway
Ojai navarretia (*Navarretia ojaiensis*)	List 1B	Near Seminole Hot springs, 1.9 miles to the west (CNDDB, 2023)
Lyon's pentachaeta (*Pentachaeta lyonii*)	FE, SE, List 1B	Paramount Ranch, 0.2 miles to the northwest (CNDDB, 2023)
Fish's milkwort (*Polygala cornuta var, fishiae*)	List 4	Near Malibu Creek, 1.1 miles to the southeast, collected 1960 (CCH, 2023)
Coulter's matilija poppy (*Romneya coulteri*)	List 4	North of Mulholland Highway, 1.4 miles to the east, collected 1965 (CCH, 2023)
Insects, Fish and Wildlife		
Santa Monica grasshopper (*Trimerotropis occidentiloides*)	SA	Near Kanan Road, 1.7 miles to the northwest (CNDDB, 2023)
Crotch bumble bee (*Bombus crotchii*)	CE	Paramount Ranch, 0.6 miles to the northwest (CNDDB, 2023)
Arroyo chub (*Gila orcuttii*)	CSC	Malibu Creek, three miles to the southeast (CNDDB, 2023)
Western pond turtle (*Emys marmorata*)	CSC	Malibu Creek, 2.1 miles to the southeast (CNDDB, 2023)
Two-striped garter snake (*Thamnophis hammondii*)	CSC	Triunfo Canyon Creek, 1.9 miles to the northwest (CNDDB, 2023)
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Tapia Park (historic, 1962), three miles to the southeast (CNDDB, 2023)

Common Name (*Scientific Name*)	Status	Nearest Report Location to the Project Site
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	CSC	Near Malibu Creek, 1.7 miles to the southeast (CNDDB, 2023)
Black-crowned night heron (*Nycticorax nycticorax*)	SA (nesting colony)	Reported from Malibou Lake area (eBird.org, 1/15/22), migrant, historically bred at Malibu Lagoon
Snowy egret (*Egretta thula*)	SA (nesting colony)	Reported from Malibou Lake area (eBird.org, 6/8/19), does not breed in the region
Great egret (*Ardea alba*)	SA (nesting colony)	Reported from Malibou Lake area (eBird.org, 3/28/22), migrant, does not breed in the region
Double-crested cormorant (*Phalacrocorax auritus*)	WL (colony)	Reported from Malibou Lake area (eBird.org, 1/21/23), migrant, does not breed in the region
American peregrine falcon (*Falco peregrinus anatum*)	FP	Malibu Creek State Park
Golden eagle (*Aquila chrysaetos*)	FP, WL (nesting)	Lobo Canyon, three miles to the west (CNDDB, 2023)
Osprey (*Pandion haliaetus*)	WL (nesting)	Reported from Malibou Lake area (eBird.org, 8/15/20), migrant, does not breed in the region
Sharp-shinned hawk (*Accipiter striatus*)	WL (nesting)	Reported from Malibou Lake area (eBird.org, 1/15/22), migrant, does not breed in the region
Cooper's hawk (*Accipiter cooperi*)	WL (nesting)	Reported from Malibou Lake area (eBird.org, 5/8/21), uncommon in the Santa Monica Mountains (breeder)
Nuttall's woodpecker (*Dryobates nuttallii*)	BCC	Reported from Malibou Lake area (eBird.org, 1/21/23), abundant in the Santa Monica Mountains (breeder)
Allen's hummingbird (*Selasphorus sasin*)	BCC	Reported from Malibou Lake area (eBird.org, 1/21/23), common in the Santa Monica Mountains (breeder)
Vaux's swift (*Chaetura vauxi*)	CSC (nesting)	Reported from Malibou Lake area (eBird.org, 4/17/20), migrant, does not breed in the region
Oak titmouse (*Baeolophus inornatus*)	BCC	Observed within the Project site during the wildlife survey, abundant in the Santa Monica Mountains (breeder)
Yellow warbler (*Setophaga petechia*)	CSC (nesting)	Reported from Malibou Lake area (eBird.org, 9/17/21), common in the Santa Monica Mountains (breeder)
Lawrence's goldfinch (*Spinus lawrencei*)	BCC	Reported from Malibou Lake area (eBird.org, 4/25/20), uncommon in the Santa Monica Mountains (breeder)
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	WL	Near Kanan Road, 2.2 miles to the north (CNDDB, 2023)
Hoary bat (*Lasiurus cinereus)*	SA, WBWG-M	Peter Strauss Ranch, 1.5 miles to the west (CNDDB, 2023)

Common Name (*Scientific Name*)	Status	Nearest Report Location to the Project Site
Western small-footed bat (*Myotis ciliolabrum*)	SA, WBWG-M	Malibu Creek State Park, 1.6 miles to the southeast (CNDDB, 2023)
Spotted bat (*Euderma maculatum*)	CSC, WBWG-H	Malibu Creek State Park, 1.6 miles to the southeast (CNDDB, 2023)
Yuma myotis (*Myotis yumanensis*)	SA, WBWG-L	Malibu Creek State Park, 1.6 miles to the southeast (CNDDB, 2023)
Western red bat (*Lasiurus frantzii*)	CSC, WBWG-H	Paramount Ranch, 0.4 miles to the north (CNDDB, 2023)
Western mastiff bat (*Eumops perotis californicus*)	CSC, WBWG-H	Paramount Ranch, 0.6 miles to the northwest (CNDDB, 2023)

BCC 2021 Birds of Conservation Concern (USFWS)
CCH Consortium of California Herbaria
CE Candidate endangered (CDFW)
CSC California Species of Special Concern (CDFW)
FE Federal Endangered (USFWS)
FP Fully protected (CDFW)
FT Federal Threatened (USFWS)
List 1B Plants rare, threatened, or endangered in California and elsewhere (CNPS)
List 4 Plants of limited distribution (CNPS)
SA Special Animal (CDFW)
SE State Endangered (CDFW)
SR State Rare (CDFW)
WBWG-M Western Bat Working Group-Medium Priority
WBWG-H Western Bat Working Group-High Priority
WBWG-L Western Bat Working Group-Low Priority
WL Watch List (CDFW)

3.4.2 Impact Analysis

a. Plants. Based on literature review and a botanical survey of the Project site, special-status plant species occurring in proximity (within 0.5 miles) to the Project site are limited to marcescent dudleya and Lyon's pentachaeta. Suitable habitat for these species does not occur at or adjacent to the Project site and they were not observed during the botanical survey. Therefore, special-status plants would not be adversely affected.

Vegetation. Vegetation would be temporarily removed to facilitate access to the bank of Medea Creek to install the replacement siphon and manholes. In addition, installing the cofferdams may result in the loss of vegetation on the banks of Medea Creek and the shoreline of Malibou Lake. Native vegetation affected would be limited to 0.06 acres of arroyo willow thickets and 0.01 acres of cattail marshes. Affected vegetation is not rare or declining. Due to the small area affected and abundance of the affected plant communities in the region, impacts to vegetation are considered less than significant.

Special-Status Reptile Species. Western pond turtle was historically reported from Malibou Lake, but is considered extirpated, possibly due to competition from the non-native red-eared slider. Two-striped garter snake has been reported from both Medea Creek and Triunfo Canyon Creek upstream of Malibou Lake (De Lisle et al., 1986) and in Malibu Creek downstream of Malibou Lake (iNaturalist.org, 2023). This aquatic species may be present and adversely affected by installation of the cofferdams and dewatering the lakebed. This impact is considered potentially significant.

Special-Status Bird Species. As shown in Table 3, several special-status bird species have been reported from Malibou Lake. However, most of these species are casual migrants and do not rely on the resources of Malibou Lake. Of the special-status bird species observed at Malibou Lake, those that are known to breed in the Santa Monica Mountains are limited to Cooper's hawk, Nuttall's woodpecker, Allen's hummingbird, oak titmouse, yellow warbler and Lawrence's goldfinch.

Cooper's hawk was previously listed as a species of special concern by CDFW, but breeding populations have increased in California and expanded into urban areas (Shuford and Gardali, 2008) and is currently on CDFW's Watch List. Nuttall's woodpecker, Allen's hummingbird, oak titmouse and Lawrence's goldfinch are considered bird species of conservation concern on a regional basis (most of coastal California) by the U.S. Fish and Wildlife Service but are not assigned any special status by CDFW. Suitable habitat for Cooper's hawk, Nuttall's woodpecker, oak titmouse and Lawrence's goldfinch (including chaparral, oak woodland, savannah, riparian woodland) does not occur within or adjacent to Project site. Therefore, substantial adverse effects to the local population of these species are not anticipated and impacts are considered less than significant.

Yellow warbler is listed as a species of special concern by CDFW when breeding, and typically nests in riparian woodland. Arroyo willow thickets do not provide suitable habitat for yellow warbler due to the small size of the willows, and the small area and highly linear and fragmented nature of this plant community at the Project site. Therefore, substantial adverse effects to the local population of this species are not anticipated and impacts are considered less than significant.

Allen's hummingbird may forage within sugar gum and other landscaping trees at or near the Project site. Although six ornamental trees are located within the construction footprint north of Lake Vista Drive, construction activity would protect in place all but one tree, a small Peruvian pepper tree. Therefore, habitat loss for Allen's hummingbird would be minimal and not affect the local population.

b. Arroyo willow thickets and cattail marsh found at the Project site may be considered riparian habitat. Due to the small area affected (0.07 acres in total), highly linear (mostly less than 15 feet wide) and fragmented nature of the affected habitat, impacts to riparian habitat are considered less than significant. In any case, the affected areas are anticipated to be recolonized following construction by riparian vegetation by expansion of adjacent areas and growth of seeds and other propagules (willow stems and twigs) transported from upstream areas by storm flows.

c. Review of the U.S. Fish & Wildlife Service National Wetlands Inventory indicates Medea Creek and Malibou Lake within the Project site support wetlands (lacustrine, limnetic, unconsolidated bottom, permanently flooded, diked/impounded). The proposed Project would affect approximately 0.5 acres of wetlands as defined by the U.S. Fish & Wildlife Service, including approximately 0.1 acres of vegetated areas and 0.4 acres of open water of Malibou Lake.

Wetland impacts would be approximately 0.1 acres under the Los Angeles Regional Water Quality Control Board definition and 0.06 acres under the Corps of Engineers definition and would be temporary. Affected wetland areas are anticipated to be recolonized following construction by expansion of adjacent areas and growth of seeds and other propagules (willow stems and twigs) transported from upstream areas by storm flows. Due to the small area affected and temporary nature of Project impacts, wetland impacts are considered less than significant.

d. Malibou Lake is surrounded by large mostly protected open space areas including Paramount Ranch and Malibu Creek State Park, such that wildlife movement is not anticipated to be focused along discrete corridors. The Project site is surrounded by development including the Malibou Lake Mountain Club to north and west, residences to the east and Malibou Lake to the south. Substantial wildlife movement is not anticipated to occur through the Project site. The proposed Project does not include any above-grade structures or other features that may disrupt wildlife movement.

e. The proposed Project would not result in the removal of protected trees, sensitive habitat identified in the Santa Monica Mountains North Area Plan or adversely affect any other biological resources protected under Los Angeles County policies or ordinances.

f. The Project site is not subject to a habitat conservation plan or other conservation plan. Therefore, no adverse impacts related to compliance with habitat conservation plans are anticipated.

3.4.3 Mitigation Measures and Residual Impacts

MM BIO-1. Dewatering of the lakebed following installation of the cofferdams shall be monitored by a qualified biologist. The dewatering pump intake shall have a 0.5-inch (or smaller) mesh screen to prevent entrainment of two-striped garter snake. A qualified biologist shall use a seine (or appropriate hand-held nets) to capture any two-striped garter snakes in the dewatered area and relocate them to suitable habitat along the lake shoreline at least 500 feet from the work area.

Implementation of this measure would reduce impacts to two-striped garter snake to a level of less than significant.

3.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Setting

Archaeological Context. Proposed improvements are located within the former Chumash territory that extended well inland from the coast and Channel Islands to include all of Santa Barbara, most of Ventura, and parts of San Luis Obispo, Kern, and Los Angeles counties. Locally, sites related to Late Prehistoric period occupation dating from approximately A.D. 500 to historic contact, yield abundant evidence regarding the lifeways of these indigenous native people before the arrival of foreign explorers.

Early Period (about 8,000 to 3,350 years ago). Reliable evidence of Holocene (post-10,000 years ago) settlement in the region begins about 8,000 years ago. The earliest sites were located on terraces and mesas; however, settlement gradually shifted to the coast (Wlodarski, 1988). Site assemblages dating to this period often contained substantial amounts of milling stones and manos, crude choppers, and core tools (W&S, 1997). Prehistoric peoples used these tools to harvest terrestrial and sea mammals, shellfish, and fish. Mortars and pestles appear toward the end of the period, suggesting a shift towards a greater reliance on acorns.

Middle Period (about 3,350 to 800 years ago). Archaeological material dating to the Middle Period represents a significant evolution in hunter-gatherer technology. The presence of chipped stone tools increases and diversifies, projectile points became more common, and fishhooks and plank canoes (*tomol*) appear (Wlodarski, 1988; W&S, 1997). Burials dating to this period provide evidence of wealth and social stratification indicating a transition to ranked society. Excavation data from the Santa Monica Mountains demonstrate expansion to the inland region allowing trade and ceremonial exchange patterns to develop.

Late Period (about 800 to 150 years ago). The cultural complexity initiated during the Middle Period intensified in the Late Period. This period is also referred to as the Chumash Era as Chumash social and religious development peaked during this time. Villages became the main population centers with satellite camps geared toward the seasonal harvest of plants, seeds, game, and material resources (Wlodarski, 1988). The Chumash became expert craftsman of baskets, stone vessels, shell beads, *tomol*, and fishing technology. It is also likely that communication and trade with non-Chumash tribes and villages accelerated during this period.

Ethnographic Context. The Chumash have been divided into several geographic groups, each associated with a distinct language dialect (Hoover, 1986). The Chumash living in the Project region formed the *Ventureño* dialect group of the Chumash language family (Golla, 2007). This group was named for their association with the Spanish Mission San Buenaventura, founded in 1782.

The Chumash political organization comprised a named village and the surrounding resource areas governed by a chief, known as the *Wot* (Sampson, 2013). Some higher status chiefs controlled large chiefdoms containing several villages. It is likely the Project area was included in the chiefdom *Lulapin,* whose limits extended from Malibu to just beyond modern Santa Barbara. The village *Muwu*, at modern Point Mugu approximately 23 miles west of the Project site, was the main headquarters for this chiefdom (Whitley and Clewlow, 1979; Whitley and Beaudry, 1991). Other villages included *Shimiyi* (from which Simi is derived), *Hu'wam* located at the base of Escorpión Peak, and *Ta'apu* located approximately 13 miles north of the PS/PRS site. According to ethnographic studies, inhabitants from different villages bonded through trade, joint ceremonies, and intermarriage (Sampson, 2013).

The chiefly offices were normally inherited through the male line with a primogeniture rule, i.e., the custom of the firstborn inheriting the office, in effect (Hoover, 1986). Chiefs had several bureaucratic assistants to help in political affairs and serve as messengers, orators, and ceremonial assistants. Several status positions were associated with specialized knowledge and rituals, such as weather prophet, ritual poisoner, and herbalist (Bean, 1974).

The Chumash were a non-agrarian culture and relied on hunting and gathering for their sustenance. Archaeological evidence indicates that the Chumash exploited marine food resources from the earliest occupation of the coast at least 9,000 years ago (Greenwood, 1978). Much of their subsistence was derived from pelagic fish, particularly during the late summer and early fall (Hoover, 1986). Shellfish were also exploited, including mussel and abalone from rocky shores and cockle and clams from sandy beaches. Acorns were a food staple; they were ground into flour using stone mortars and pestles and then leached to remove tannic acid. In addition, a wide variety of seeds, including *chia* from various species of sage, was utilized. The Chumash harvested several plants for their roots, tubers, or greens (Hoover, 1986).

In this area, as elsewhere in California, basketry served many of the functions that pottery did in other places. The Chumash used baskets for cooking, serving, storage, and transporting burdens. Some basket makers wove baskets so tightly that they could hold water while others waterproofed their baskets by lining them with pitch or asphaltum (Chartkoff and Chartkoff, 1984).

The coastal Chumash practiced a regular seasonal round of population dispersal and aggregation in response to the location and seasonal availability of different food resources (Landberg, 1965). In this way, large coastal villages would have been fully populated only in the late summer when pelagic fishing was at its peak. Through winter, the Chumash depended largely on stored food resources. During the spring and summer, the population dispersed through inland valleys to harvest wild plant resources (Landberg, 1965).

The Chumash lived in large, hemispherical houses constructed by planting willows or other poles in a circle and bending and tying them together at the top. These structures were then covered with tule mats or thatch. Structures such as this housed 40 to 50 individuals, or three-to-four-member family groups. Dance houses and sweathouses are also reported for the Chumash (Kroeber, 1925). Archaeological evidence supports observations that twin or split villages existed on opposite sides of streams or other natural features, possibly reflecting the moiety system of native California (Greenwood, 1978).

Spanish colonization and the establishment of Mission San Buenaventura ended Chumash culture in Ventura County. Chartkoff and Chartkoff (1984) note that Spanish settlement barred many Native Americans from traditionally important resources including clamshell beads, abalone shells, Catalina steatite, shellfish, and asphaltum. The introduction of European customs and diseases transformed the hunter-gatherers into agricultural laborers and decimated the native population.

Spanish Period. The Spanish period of history in California begins with the exploration of the coast in the 16th century. Spanish explorer Juan Rodríquez Cabrillo was the first to chart and name the coastal harbors and islands of California. Spanish occupation of California began in 1769 with the establishment of Mission San Diego. The Franciscans subsequently established a chain of twenty-one missions that were linked by El Camino Real. Calabasas was located along this important transportation route, as well as the Anza Trail. To encourage the settlement of Alta California, the Spanish government also granted large tracts of land called ranchos. During the Spanish period of history, Calabasas was positioned between Rancho Las Virgenes and Mission San Fernando (C.A. Joseph & Associates, 2009).

Early Exploration. Juan Rodríguez Cabrillo led the first European expedition to explore what is now the west coast of the United States. Cabrillo departed from the port of Navidad, Mexico, on June 27, 1542. 103 days into the journey, Cabrillo's ships entered San Diego Bay. He probably landed at Ballast Point where he claimed the land for Spain. Cabrillo described the bay as "a closed and very good harbor," which he called San Miguel. The name San Miguel was changed to San Diego sixty years later by another explorer, Sebastián Vizcaíno.

The expedition continued north to Monterey Bay and may have reached as far north as Point Reyes before storms forced the ships to turn back. Discouraged by foul weather, Cabrillo decided to winter in the Channel Islands. There, after a fall incurred during a brief skirmish with Indians, Cabrillo shattered a limb and died of complications on January 3, 1543. Following Cabrillo's death, the disheartened crew again sailed north -- this time under the leadership Bartolomé Ferrer. The expedition may have reached a latitude as far north as the Rogue River in Oregon but thrashing winter winds and spoiled supplies forced them to return to Mexico.

By the mid-18th century, the eastward push of Russian forts and the presence of traders at the mouth of the Columbia River insured that the settlement of Alta California was an important part of the massive reorganization of the northern frontier of New Spain launched in 1765. Under the direction of Visitador General José de Gálvez, the plans for a new chain of California missions were formulated. Don Gaspar de Portola, who had recently been appointed governor of Baja California, was put in charge of the expedition, while Father Junípero Serra was put in charge of the missionaries. Based in Baja California, four expeditions, two by land and two by sea, set off in 1769 to colonize Alta California. As the expedition traveled north, they discovered the San Fernando Valley and named it Valle de los Encinos, Valley of the Oaks. They continued north and eventually found San Francisco Bay. On their return trip, they again entered the San Fernando Valley and possibly camped in the Calabasas area (C.A. Joseph & Associates, 2009).

Between 1774 and 1776, Juan Bautista de Anza led two overland expeditions from Sonora to Alta California. In October 1775, Anza, by then a lieutenant colonel, guided a group of 240 people from his staging area in Tubac to California. The primary motive for the expedition was to establish a presidio and mission near San Francisco Bay. In June 1776, the colonists, led by Anza's second in command Lieutenant José Joaquín Moraga, continued their journey to San Francisco Bay.

Both expeditions entered Los Angeles County from the east past San Dimas and went on to Mission San Gabriel. During the 1775-76 journey, the colonists stayed at the mission for about six weeks while Anza and some soldiers went to San Diego to quell an Indian rebellion. Later, the colonists traveled west from the mission. From an account recorded by Father Pedro Front, scholars think the expedition followed the Los Angeles River through Griffith Park to the San Fernando Valley and to the Calabasas Creek vicinity.

On February 22, 1776 the colonists made camp in the Las Virgenes area. The exact location of the campsite is unknown, but is referred to in historical documents as "Agua Escondida" or Hidden Water. This could possibly be a destroyed spring in the Deer Springs tract off of Lost Hills Road in Calabasas. The park at 3701 Lost Hills Road is named Juan Bautista de Anza Park (C.A. Joseph & Associates, 2009).

Spanish Land Grants. To further encourage the settlement of California, the Spanish government granted large tracts of land called ranchos. Rancho Las Virgenes, or El Rancho de Nuestra Senora La Reina de Las Virgenes as it was first called, was originally granted to Miguel Ortega in 1801 or 1802. Ortega was married to Maria Rosa, a Chumash Indian and was appointed a council member of Los Angeles in January 1797 by Mayor Manuel Ramirez Arrellano. The grant included the area from Liberty Canyon on the east to the edge of present-day Westlake Village on the west, north to the Simi grant, and south to the Malibu Tapia grant. The Rancho Las Virgenes grant passed to Doña María and Antonia Machado Del Reyes. They built an adobe, now referred to as the Reyes Adobe in the District of Agoura Hills (C.A. Joseph & Associates, 2009).

Mission San Fernando. Father Lasuén, who succeeded Serra as Father Presidente of the Alta California missions, founded Mission San Fernando Rey de España on September 8, 1797. It was the seventeenth mission in the chain. Situated directly on the highway leading to the fast-growing community of Los Angeles, it soon became the most popular stopping off place for travelers on El Camino Real. The number of overnight visits at the prosperous mission increased so steadily that the padres kept adding to the convento, or "hotel" facilities.

Spanish colonization led to modification in Indian cultural practices and religious beliefs but did not result in the complete acculturation and conversion process the Franciscans had hoped for. Indians selectively adopted elements of Spanish culture and Catholic beliefs and ignored others. The demise of cultural practices and religion is unfortunately related to the high mortality rate among mission neophytes. At the beginning of the mission period, Franciscans were able to recruit new Indians to replace the acculturated ones who died. By 1810, recruitment began to decline.

The decline in the neophyte population at Mission San Fernando coincided with the decreasing productivity of the mission. Soon there were frequent times when the padres were barely able to supply the produce demanded by the military headquarters in Los Angeles. Further misfortune occurred during the earthquake of 1812 when a considerable amount of rebuilding was necessary to ensure the safety of the buildings. From that time forward the padres at Mission San Fernando fought a losing fight against the encroachment of new settlers (C.A. Joseph & Associates, 2009).

American Period. After California was admitted to the Union as the thirty-first state, increasing numbers of European settlers made their homes in the Calabasas area. Basque is a geographical region on the border of France and Spain with its own language and culture. While Basques, such as Juan Bautista de Anza, were involved in early Spanish exploration, their discernible presence in the region dates from the California Gold Rush in 1849.

Miguel Leonis was one of many Basque settlers in the Calabasas area. Leonis arrived in Los Angeles in 1858 and went to work as a sheepherder for Joaquín Romero, who owned half of Rancho El Escorpión. Under Leonis' ownership, the rancho prospered, and his livestock increased in number. Leonis had over 100 employees, most of whom were Mexican and Indian. He ruled like a feudal lord and was known throughout California as the "King of Calabasas" (C.A. Joseph & Associates, 2009).

Cultural Records Search. On behalf of Padre Associates, Mary Maki of Conejo Archaeological Consultants completed an in-person records search at the South Central Coast Information Center of the California Historical Resources Information System at the California State University, Fullerton on January 26, 2023.

Padre emailed a request for a Sacred Lands File search to the Native American Heritage Commission (NAHC) on January 5, 2023, to request information about sacred or traditional cultural properties that may be located within the Project site. The NAHC responded on January 19, 2023 stating that the Sacred Lands File search was negative, indicating none occur in the Project vicinity.

The records search included a review of all recorded historic-era and prehistoric archaeological sites within a 0.25-mile radius of the Project site as well as a review of known cultural resource surveys and technical reports. The State Historic Property Data Files, National Register of Historic Places, National Register of Determined Eligible Properties, California Points of Historic Interest, and the California Office of Historic Preservation Archaeological Determinations of Eligibility also were analyzed.

The records search identified one previously recorded cultural resource within the Project site and one additional previously recorded cultural resource within the 0.25-mile search radius. Table 4 lists and describes these resources. The Malibu Lake Bridge (cultural resource P-19-187550) is located within the Project site and was constructed in 1923, with alterations in 1945 and 1968. A 2003 survey by JRP Historical Consulting determined that the bridge did not appear to meet the criteria for listing on the National Register of Historical Places nor does it appear to be a historical resource for purposes of CEQA.

Tribal Consultation. See Section 3.18.

Table 4. Previously Recorded Cultural Resources

Primary No.	Trinomial No.	Description
P-19-187550	**-**	**Historic Medea Creek Bridge (53C-0935), constructed in 1923**
P-19-191857	-	Historic Paramount Ranch

Source: South Central Coast Information Center, 2023
Note: Resources located within the Project site are listed in **bold**.

3.5.2 Impact Analysis

Section 15064.5 of the State CEQA Guidelines states that a substantial adverse change in the significance of a historical resource may have a significant effect on the environment. Adverse changes may include demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. For the purposes of this document, a substantial adverse change to a historically significant resource is considered a significant impact. Material impairment occurs when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources;

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

A cultural resource shall be considered to be "historically significant" if the resource meets the criteria for listing on the California Register of Historic Resources (Public Resources Code Section 5024.1) including the following:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- 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
- Has yielded, or may be likely to yield, information important in prehistory or history.

a. The Malibu Lake Bridge is not considered a historic resource. In any case, the proposed Project would not adversely affect this bridge.

b. The cultural resources record search did not identify any archaeological resources within or immediately adjacent to the Project site. The Sacred Lands File search did not identify any tribal cultural resources near the Project site. The Project includes excavation of the Medea Creek streambanks which could result in damage or destruction of unreported cultural deposits (artifacts, burials, middens, Native American occupied sites).

c. Although highly unlikely, disturbance of human remains could occur during Project-related excavation.

3.5.3 Mitigation Measures and Residual Impacts

MM CR-1. The following mitigation measures are consistent with the guidelines of the State Office of Historic Preservation and shall be incorporated into the Project to prevent significant impacts, should resources be found during excavation.

- A worker cultural resources sensitivity program shall be implemented prior to construction at the Project site. Prior to any ground-disturbing activity, a qualified archeologist shall provide an initial sensitivity training session to all affected contractors, subcontractors, and other workers, with subsequent training sessions to accommodate new personnel becoming involved in Project construction. The sensitivity program shall address the cultural sensitivity of the area and how to identify these cultural resources, specific procedures to be followed in the event of an inadvertent discovery, and consequences in the event of non-compliance.
- Should any buried archaeological materials be uncovered during Project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.
- If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and deposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.

Implementation of the above measures would reduce impacts to archaeological resources to a level of less than significant.

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☐	☒
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.6.1 Setting

Energy is provided to the Project area in the form of electricity from Southern California Edison and natural gas from the Southern California Gas Company.

3.6.2 Impact Analysis

a. Project-related construction activities would consume non-renewable energy in the form of fuels and lubricants for vehicles and equipment. This energy use would not be wasteful, inefficient or unnecessary.

b. The proposed Project would not conflict with any State or local plan for renewable energy or energy efficiency.

3.6.3 Mitigation Measures and Residual Impacts

None required.

3.7 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. 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?	☐	☐	☒	☐
d. 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?	☐	☐	☒	☐
e. 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?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

3.7.1 Setting

The Project region is encompassed within the Transverse Ranges geomorphic province of southern California. The Transverse Ranges province is oriented generally east-west, which is oblique to the general north-northwest structural trend of California mountain ranges. The Transverse Ranges province extends from the Los Angeles Basin westward to Point Arguello and is composed of Cenozoic-to Mesozoic-age sedimentary, igneous, and metamorphic rocks.

Soils. Soils of the Project site (banks and shoreline) have been mapped as Cotharin-Talepop-Urban Land complex, 0 to 50 percent slopes. The Cotharin soil series is composed of loams and the Talepop soil series is composed of gravelly loams.

Local Geology. The geology of the immediate Project area is mostly composed of Conejo Volcanics (basaltic flows and breccia). However, the area west of the Lake Vista Drive bridge (Malibou Lake Mountain Club) is underlain by Quaternary alluvial gravel, sand and clay of floodplains.

Geologic Hazards. Earthquake Faults. The entire Southern California region, including the Project area, is located within a seismically active area. The nearest fault is the Malibu Coast Fault, located approximately 4.9 miles to the south of the Project site. This fault is considered active as evidence of movement in the late Quaternary period has been reported (Treiman, 1994).

Seismic Ground Shaking. Ground shaking is the cause of most damage during earthquakes. The Project area has a 10 percent chance of exceeding a peak ground acceleration of 0.47 g (alluvium conditions) in 50 years (California Department of Conservation, 2001).

Liquefaction. Liquefaction occurs when strong, cyclic motions during an earthquake cause water-saturated soils to lose their cohesion and take on a liquid state. Liquefied soils are unstable and can subject overlying structures to substantial damage. The occurrence of liquefaction is highly dependent on local soil properties, depth to groundwater, and the strength and duration of a given ground-shaking event. Areas on both sides of the Lake Vista Drive bridge are located within a liquefaction hazard zone as designated by the California Department of Conservation (2001).

Seiche and Tsunami Hazards. Tsunamis are seismically induced sea waves that can be of sufficient size to cause substantial damage to coastal areas. The last major tsunami in Southern California was in 1812, generated by an earthquake in the Santa Barbara Channel. The largest tsunami wave amplitude recorded by modern instrumentation in in the region was 8.8 feet, associated with the Chilean earthquake of 1960. In 2010, an earthquake in Chile generated a tsunami which caused minor damage to structures and vessels in the Ventura Harbor. A tsunami generated by a volcanic eruption in Tonga in January 2022 caused minor damage to a few boats in the Ventura Harbor. The nearest tsunami inundation hazard area is located approximately 5.3 miles south of the Project site (California Office of Emergency Services, 2021, maps.conservation.ca.gov/cgs/informationwarehouse/ts_evacuation).

Seiches are oscillating waves that occur in enclosed or semi-enclosed bodies of water such as lakes and bays. Seiches are commonly caused by earthquakes. There is no record of a seiche occurring in the region. Malibou Lake is subject to a seiche given a sufficiently large and nearby seismic event.

Landslides/Mudflow Hazard. Areas of high landslide or mudflow potential are typically hillside areas with slopes of greater than 10 percent. Areas on both sides of the Lake Vista Drive bridge have been designated a seismically-induced landslide hazard area (California Department of Conservation, 2001).

Expansive Soils Hazards. Expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. Alluvial soils west of the Lake Vista Drive bridge may be expansive.

3.7.2 Impact Analysis

a. The proposed replacement siphon and associated tie-in pipes and manholes have been designed to accommodate the local geologic environment and would be constructed according to applicable building and plumbing codes. The proposed pipe material (HDPE) is flexible and resistant to damage from seismic events. The existing siphon is damaged and subject to failure in a seismic event, possibly resulting in environmental impacts. The proposed replacement siphon would eliminate this risk. Overall, the proposed Project would not result in any new seismic hazards and would not increase the number of persons or property exposed to existing seismic hazards.

b. Areas affected by excavation related to siphon replacement would be backfilled and restored to pre-project topographic contours, including the lakebed and streambanks. Therefore, substantial soil erosion or loss of topsoil is not anticipated.

c. Project components (including the replacement siphon and associated tie-in pipes and manholes) have been designed to withstand and avoid increasing the potential for landslides, lateral spreading, liquefaction or collapse.

d. Expansive soils may be encountered during Project construction activities; however, Project components have been designed and would be constructed to withstand anticipated effects of expansive soils. Overall, the proposed Project would not expose the public or other structures to substantial adverse effects related to expansive soils.

e. Septic waste disposal systems are not proposed as part of the Project; therefore, no impacts would result.

f. The online collections database of the University of California Museum of Paleontology indicates Miocene era marine invertebrates (gastropods and bivalves) and an Oligocene era primitive mammal (*Eutheria*) have been collected in the Malibu Canyon area. Intact geologic formations that may contain fossils would not be affected by Project-related earthwork; therefore, impacts to paleontological resources are not anticipated. No unique geologic features have been identified in the Project area, and none would be adversely affected by Project implementation.

3.7.3 Mitigation Measures and Residual Impacts

None required.

3.8 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or directly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.8.1 Setting

Climate change, often referred to as "global warming" is a global environmental issue that refers to any significant change in measures of climate, including temperature, precipitation, or wind. Climate change refers to variations from baseline conditions that extend for a period (decades or longer) of time and is a result of both natural factors, such as volcanic eruptions, and anthropogenic, or man-made, factors including changes in land-use and burning of fossil fuels. Anthropogenic activities such as deforestation and fossil fuel combustion emit heat-trapping GHGs, defined as any gas that absorbs infrared radiation within the atmosphere.

2022 was the sixth-warmest year on record based on global temperature data. The 2022 surface temperature was 1.55 °F warmer than the 20th-century average of 57.0 °F and 1.90 ˚F warmer than the pre-industrial period (1880-1900). The 10 warmest years in the historical record have all occurred since 2010.

GHG emissions are a global issue, as climate change is not a localized phenomenon. Eight recognized GHGs are described below. The first six are commonly analyzed for projects, while the last two are often excluded for reasons described below.

- Carbon Dioxide (CO2): natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic degassing; anthropogenic sources of CO2 include burning fuels such as coal, oil, natural gas, and wood.
- Methane (CH4): natural sources include wetlands, permafrost, oceans and wildfires; anthropogenic sources include fossil fuel production, rice cultivation, biomass burning, animal husbandry (fermentation during manure management), and landfills.
- Nitrous Oxide (N2O): natural sources include microbial processes in soil and water, including those reactions which occur in nitrogen-rich fertilizers; anthropogenic sources include industrial processes, fuel combustion, aerosol spray propellant, and use of racing fuels.
- Chlorofluorocarbons (CFCs): no natural sources, synthesized for use as refrigerants, aerosol propellants, and cleaning solvents.
- Hydrofluorocarbons (HFCs): no natural sources, synthesized for use in refrigeration, air conditioning, foam blowing, aerosols, and fire extinguishing.

- Sulfur Hexafluoride (SF6): no natural sources, synthesized for use as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF6 has a long lifespan and high global warming potential.
- Ozone: unlike the other GHGs, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. Due to the nature of ozone, and because this Project is not anticipated to contribute a significant level of ozone, it is excluded from consideration in this analysis.
- Water Vapor: the most abundant and variable GHG in the atmosphere. It is not considered a pollutant and maintains a climate necessary for life. Because this Project is not anticipated to contribute significant levels of water vapor to the environment, it is excluded from consideration in this analysis.

The primary GHGs that would be emitted during construction and operation of the proposed Project are CO_2, CH_4 and N_2O. The Project is not expected to have any associated use or release of HFCs, CFCs or SF_6.

CO_2 is also used as a reference gas for climate change. To account for different GHG global warming potentials, emissions are often quantified and reported as CO_2 equivalents (CO_2E). Currently, the CO_2 global warming potential is set at a reference value of 1, CH_4 has a global warming potential of 27.9 (i.e., 1 ton of methane has the same global warming potential as 27.9 tons of CO_2), while nitrous oxide has a global warming potential of 273.

Climate change is having and will continue to have widespread impacts on California's environment, water supply, energy consumption, public health and economy. Many impacts already occur, including increased fires, floods, severe storms, and heat waves. Documented effects of climate change in California include increased average, maximum, and minimum temperatures; decreased spring runoff to the Sacramento River; shrinking glaciers in the Sierra Nevada; sea-level rise at the Golden Gate Bridge and San Francisco Bay; warmer temperatures in Lake Tahoe, Mono Lake, and other major lakes; and plant and animal species found at changed elevations (Governor's Office of Planning and Research, 2018).

The primary legislation affecting GHG emissions in California is the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). AB 32 (Nuñez; Chapter 488, Statutes of 2006) focuses on reducing GHG emissions in California and required the State to reduce GHG emissions to 1990 levels by 2020. CARB prepared a Draft Scoping Plan for Climate Change in 2008 pursuant to AB 32. The Climate Change Scoping Plan was updated in May 2014 and November 2017.

In 2016, the State met the AB 32 target, 4 years early. The State Legislature passed Senate Bill (SB) 32 (Pavley; Chapter 249, Statutes of 2016), which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. The 2017 update to the Scoping Plan focuses on strategies to achieve the 2030 target set by Executive Order B-30-15 and codified by SB 32.

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of GHGs from the atmosphere, including through sequestration in forests, soils, and other natural landscapes. CARB finalized the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) on November 16, 2022 which lays out a path to achieve targets for carbon neutrality and reduce anthropogenic greenhouse gas emissions by 85 percent below 1990 levels no later than 2045.

3.8.2 Impact Analysis

The District has not adopted any GHG emissions significance thresholds. To date, GHG thresholds of significance have not been adopted by Los Angeles County or SCAQMD. On December 5, 2008, the SCAQMD governing board adopted an interim GHG significance threshold of 10,000 metric tons per year CO_2 equivalent (including amortized construction emissions) for industrial projects and a screening threshold of 3,000 metric tons per year CO_2 equivalent for commercial and residential projects. The proposed Project is limited to replacement of an existing wastewater pipeline and would not result in any long-term GHG emissions. Due to the lack of any other applicable threshold, the industrial project threshold is used in this analysis to determine the significance of the contribution of the Project to global climate change.

a. The proposed Project would not result in long-term GHG emissions. However, Project construction would generate GHG emissions, primarily in the form of CO_2 exhaust emissions from the use of off-road construction equipment and on-road vehicles. Table 5 provides a summary of total construction GHG emissions and a comparison to the annual significance threshold. Project GHG emissions would be substantially less than the significance threshold (see Table 5). Therefore, construction-related GHG emissions are considered a less than significant impact on global climate change.

Table 5. Construction GHG Emissions Summary (metric tons)

Source	CO_2	CH_4	N_2O	CO_2E
Heavy equipment	203.8	1.08	0.25	205.2
Motor vehicles	24.4	<0.01	<0.01	24.9
Total Construction	**228.2**	**1.08**	**0.25**	**230.1**
Construction GHG Emissions Amortized over 30 Years				**7.7**
Annual Significance Threshold				*10,000*

b. The proposed Project would not involve any sources of greenhouse gases that are regulated under the State cap and trade program, or other plans or policies regulating these emissions.

3.8.3 Mitigation Measures and Residual Impacts

None required.

3.9 HAZARDS AND HAZARDOUS MATERIALS/RISK OF UPSET

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. 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?	☐	☐	☐	☒
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. 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?	☐	☐	☐	☒
e. 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 excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

3.9.1 Setting

The Project site has not supported any past land uses that may involve the use, transportation, disposal or spillage of hazardous materials. Based on a review of the State Water Resources Control Board's Geotracker data base, a leaking underground gasoline storage tank at the Los Angeles County's Agoura Road Yard (1.1 miles west of the Project site) was reported leaking in 1998. The tank and contaminated soil was removed and the case was closed by the State Water Resources Control Board on June 19, 2008.

3.9.2 Impact Analysis

a. The proposed Project would not use, transport or dispose of hazardous materials; however, diesel fuel may be brought to the Project site using a maintenance truck to fuel construction equipment. No storage of diesel fuel would occur on-site. Therefore, significant hazards to the public or environment related to hazardous materials would not occur.

b. There are no sites with contaminated soil or groundwater that may be disturbed by Project construction and result in an environmental hazard.

c. The nearest school is Agoura High School located approximately 2.8 miles north of the Project site. The proposed Project would not involve the use of hazardous materials, hazardous waste or result in hazardous emissions.

d. No hazardous materials sites compiled pursuant to Government Code Section 65962.5 are located in the Project area. The proposed Project would not affect any such sites or result in a related hazard to the public or the environment.

e. The nearest airport is the Santa Monica Airport, located approximately 18.2 miles to the southeast. The proposed Project does involve any change in land use or other features that could increase safety or noise hazards resulting from airport proximity.

f. The proposed Project would require closure of Lake Vista Drive for short periods during construction. However, all land uses would continue to have access to Mulholland Highway for emergency response or evacuation purposes. In the long-term, the proposed Project would not involve any change in land use or impair the use of the affected roadways for emergency response or evacuation.

g. Project components would either be buried (HDPE pipe) or composed of non-flammable materials (steel, concrete, asphalt, gravel) and would not involve any habitable structures or increase the risk of loss, injury or death from wildland fires.

3.9.3 Mitigation Measures and Residual Impacts

None required.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
c. 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:				
1. Result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
2. Substantially increase the rate or amount of surface run-off in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
3. 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?	☐	☐	☒	☐
4. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.10.1 Setting

Description of Surface Waters. The Project site is located at the confluence of Medea Creek and Malibou Lake. Medea Creek flows south from its headwaters on the south slope of Simi Peak into Malibou Lake, which is the confluence with Triunfo Canyon Creek. Malibu Creek begins at the outlet of Malibou Lake and discharges to the Pacific Ocean. Malibou Lake was formed by a dam constructed in 1922 and is operated by the Malibou Lake Mountain Club. The Lake is periodically dredged of excess sediment, most recently in 2019.

Groundwater Environment. The Project site is not located within a designated groundwater basin. The Russell Valley Groundwater Basin is located approximately 2.2 miles to the north. Potable water consumed by the Malibou Lake community is composed of imported water (State Water Project) supplied by the Las Virgenes Municipal Water District.

Groundwater Management. The 2014 Sustainable Groundwater Management Act requires establishment of a groundwater sustainability agency within two years from the date in which the basin was designated medium or high priority, and adoption of a groundwater sustainability plan within 5 years of the date of said designation. The Russell Valley Groundwater Basin has been designated a very low priority basin and preparation of groundwater sustainability plan is not required.

Clean Water Act. In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Consistent with the requirements of Clean Water Act Section 303(d) (approved 2020-2022 Integrated Report), the State Water Resources Control Board has identified Medea Creek and Malibou lake as impaired waters because identified beneficial uses are not consistently supported. Impairments for Medea Creek upstream of Malibou Lake to its confluence with Lindero Canyon Creek are associated with algae, benthic community effects, indicator bacteria, sedimentation/siltation, selenium and trash. Impairments for Malibou Lake are associated with algae, dieldrin, eutrophic conditions and organic enrichment/low dissolved oxygen.

Total Maximum Daily Loads (TMDLs) have been developed (as required by the Clean Water Act) for many of the impairments in the watershed. The TMDL is a number that represents the assimilative capacity of a receiving water to absorb a pollutant and is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources plus an allotment for natural background loading, and a margin of safety. TMDLs can be expressed in terms of mass per time (the traditional approach) or in other ways such as toxicity or a percentage reduction or other appropriate measure relating to a water quality objective. A TMDL is implemented by reallocating the total allowable pollution among the different pollutant sources (through the permitting process or other regulatory means) to ensure that the water quality objectives are achieved. TMDLs have not been developed for Medea Creek. TMDLs in effect in all or parts of Malibu Creek include those for nutrients, and nutrients and sediment for benthic community impairment (primarily the lagoon).

Water Quality Control Plan, Los Angeles Region. The California Porter-Cologne Act assigns the State Water Resources Control Board and Regional Water Quality Control Boards with the responsibility of protecting surface water and ground water quality in California. The Project component sites is within the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). Per the requirements of the Clean Water Act and the California Porter-Cologne Act, LARWQCB has prepared a Water Quality Control Plan for the watersheds under its jurisdiction, last updated in 2014. The Water Quality Control Plan has been designed to support the intentions of the Clean Water Act and the Porter-Cologne Act by (1) characterizing watersheds within the Los Angeles Region; (2) identifying beneficial uses that exist or have the potential to exist in each water body; (3) establishing water quality objectives for each water body to protect beneficial uses or allow their restoration, and; (4) providing an implementation program that achieves water quality objectives. Implementation program measures include monitoring, permitting and enforcement activities.

The Water Quality Control Plan establishes regional qualitative and/or quantitative water objectives that apply to all inland surface waters, estuaries and enclosed bays in the Los Angeles Region. The regional objectives pertain to the following water quality parameters: ammonia, bacteria (coliform), bioaccumulation, bio-chemical oxygen demand, bio-stimulatory substances (e.g., nutrients), chemical constituents, chlorine, color, exotic vegetation, floating material, methylene blue activated substances, mineral quality, nitrogen, oil and grease, dissolved oxygen, pesticides, pH, polychlorinated biphenyls, priority pollutants, radioactive substances, soli, suspended or settleable materials, taste and odor, temperature, toxicity and turbidity.

The Water Quality Control Plan also provides water quality objectives for specific beneficial uses such as municipal water supply, agricultural supply, water contact recreation, non-water contact recreation, cold freshwater aquatic life habitat, fish spawning habitat and shellfish harvesting. Beneficial uses established for Medea Creek are municipal water supply (potential), groundwater recharge (intermittent), warm freshwater habitat (intermittent), cold freshwater habitat (potential), wildlife habitat, rare, threatened or endangered species habitat, wetlands, water contact recreation (intermittent) and non-water contact recreation (intermittent). Beneficial uses established for Malibou Lake are municipal water supply (potential), navigation, warm freshwater habitat, wildlife habitat, rare, threatened or endangered species habitat, wetland habitat, water contact recreation and non-water contact recreation.

Water quality parameters of concern and numeric objectives vary considerably depending on the nature of the beneficial use. For example, objectives for municipal water supply and fish spawning habitat are much more stringent and apply to a greater number of parameters than those for agricultural or industrial water supply. Depending on the type of beneficial use, objectives can apply to parameters such as specific organic chemicals, heavy metals, inorganic ions, nutrients, pH, bacteria levels, temperature, dissolved oxygen, etc. In cases where multiple beneficial uses are designated for a given water body (as is the case for local water bodies), a combination of objectives apply, some of which are for the same parameters. In these cases, the most stringent objective for each water quality parameter applies to the water body.

Storm Water Management. Storm water (wet weather) and non-storm water (dry weather) discharges from municipal separate storm sewer systems (MS4), or storm drain systems within the coastal watersheds of Los Angeles County are regulated under Order No. R4-2012-0175 issued by the LARWQCB (as amended by State Water Resources Control Board Order WQ 2015-0075). The permit effectively prohibits non-storm discharges into the MS4 and receiving waters with certain exceptions. It also requires that treatment controls to be designed to meet certain performance criteria, that each Permittee implement programs and measures to comply with the TMDLs' waste load allocations for the MS4 specified in the permit, and that regular inspections of various types of commercial facilities be undertaken. A monitoring program must also be implemented.

Flood Hazard. The Project site is located within a special flood hazard area, with a 1% annual chance flood hazard and base elevation of 737 feet (Flood Insurance Rate Map panel 06037C1507G, effective 4/4/18). This flood hazard area includes portions of the Malibou Lake Mountain Club facilities (picnic area, boat launch, swimming pool) west of the Lake Vista Drive bridge.

3.10.2 Impact Assessment

a. The proposed Project would not result in direct discharges that may affect surface water or groundwater quality. Wastewater in the existing siphon would be pumped out before pipe removal and discharged to the existing sewer manhole. Surface water pumped from the siphon replacement work area in the lakebed may be turbid and exceed water quality objectives. Therefore, this water would be discharged to the District's sewer for treatment at the Tapia Water Reclamation Facility.

Storm water run-off from the Project site during construction may degrade surface water quality. The Project would disturb over one acre of land such that it would require coverage under the NPDES General Permit for Discharges of Storm Water Associated with Construction and Land Disturbance Activities (Water Quality Order 2009-0009-DWQ). As required by the conditions of the General Permit, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared, which would include best management practices to be implemented and a monitoring program. The intent of the SWPPP would be to prevent Project-related pollutants from contacting surface water and prevent products of erosion from moving off-site into receiving waters.

b. The proposed Project would not result in any increase in groundwater usage or otherwise affect groundwater management of any groundwater basin.

c. The Project would not alter existing drainage patterns or alter the course of a stream or river. Areas affected by excavation would be backfilled and restored to pre-project topographic contours, including the lakebed and banks of Medea Creek. Therefore, substantial soil erosion or siltation is not anticipated. The proposed access roads and manholes would result in an increase of approximately 0.08 acres of impervious surfaces. Stormwater run-off from these areas would drain directly to Medea Creek and would not cause local flooding or affect any existing drainage systems. The proposed siphon would be fully buried and would not impede or redirect flood flows.

d. The proposed Project would not increase the risk of the release of pollutants (including untreated wastewater conveyed in the buried siphon) in the event of inundation by floodwaters or seiche waves. In contrast to the existing siphon, the proposed replacement siphon would be more resistant to damage from storm flows and reduce the risk of wastewater discharge during an extreme storm event.

e. See the discussion under parts a. and b. above.

3.10.3 Mitigation Measures and Residual Impacts

None required.

3.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.11.1 Setting

The Project site is located with the Los Angeles County Santa Monica Mountains North planning area and subject to the Santa Monica Mountains North Area Plan. The Project site is zoned as Open Space (O-S) within Medea Creek and Malibou Lake, Residential (R-R-1) west and northeast of the Lake Vista Drive Bridge, and Residential (R-1-20) southeast of the Lake Vista Drive Bridge.

3.11.2 Impact Analysis

a. The proposed Project would not result in any change in land use or otherwise divide an established community.

b. The proposed Project would be consistent with applicable Los Angeles County policies and regulations protecting environmental resources.

c. The Project site is not subject to a habitat conservation plan or natural community conservation plan and would not conflict with any such plan.

3.11.3 Mitigation Measures and Residual Impacts

None required.

3.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Result in the loss or availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. 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?	☐	☐	☐	☒

3.12.1 Setting

Petroleum. One idle oil/gas well is located approximately 0.4 miles north of the Project site. The nearest active oil well is located in the Oak Park Oil Field, approximately 13.7 miles north of the Project site (California Department of Conservation Well Finder GIS application, accessed on January 31, 2023).

Aggregate. Non-petroleum mineral resources in the Project region are limited to construction-grade sand and gravel. The Project site has been assigned a Mineral Land Classification of MRZ-1 by the California Division of Mines and Geology (1994), meaning the area supports no significant aggregate deposits. The nearest aggregate production site is Tapo Rock and Sand, located approximately 15.3 miles north of the Project site.

3.12.2 Impact Analysis

a. The proposed Project would not hamper the extraction of aggregate resources in the region. Therefore, no impacts to such resources would occur as result of Project implementation.

b. The proposed Project would not adversely affect petroleum production or other mineral resource production sites, or the availability of these resources.

3.12.3 Mitigation Measures and Residual Impacts

None required.

3.13 NOISE

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
c. For a project 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?	☐	☐	☐	☒

3.13.1 Setting

Sound, Noise and Acoustics Background. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Because decibels are logarithmic units, sound pressure level cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear. Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound pressure level in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in noise impact assessments. Noise levels for impact assessments are typically reported in terms of A-weighted decibels or dBA.

As discussed above, doubling sound energy results in a three dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern one dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of one to two dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of three dB in typical noisy environments. Further, a five dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a three dB increase in sound, would generally be perceived as barely detectable.

Noise Descriptors. Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in community noise analysis.

- Equivalent Sound Level (Leq) represents an average of the sound energy occurring over a specified period. The one-hour A-weighted equivalent sound level (Leq[h]) is the energy average of A-weighted sound levels occurring during a one-hour period.
- Percentile-Exceeded Sound Level represents the sound level exceeded for a given percentage of a specified period (e.g., L10 is the sound level exceeded 10% of the time, and L90 is the sound level exceeded 90% of the time).
- Maximum Sound Level is the highest instantaneous sound level measured during a specified period.
- Day-Night Level is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m.
- Community Noise Equivalent Level (CNEL) is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and a five dB penalty applied to the A-weighted sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m.

Sensitive Receptors. Consistent with the Santa Monica Mountains North Area Plan Noise Technical Report, sensitive receptors are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where individuals expect quiet to be an essential element of the location. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise and potential sleep disruptions. Additional land uses, such as parks, historic sites, cemeteries, and recreation areas, are also considered sensitive to exterior noise. Schools, places of worship, hotels, libraries, nursing homes, retirement residences, and other places where low interior noise levels are essential are also considered noise sensitive land uses/sensitive receptors.

Characteristics of Ground-borne Vibration and Noise. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

The effects of ground-borne vibration include detectable movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance would be well below the damage threshold for normal buildings.

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity or acceleration. Because the motion is oscillatory, there is no net movement of the vibration element and the average of any of the motion descriptors is zero. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the floor movement and acceleration is the rate of change of the speed. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV is often used in monitoring of blasting vibration since it is related to the stresses that are experienced by buildings.

Project Area Noise Environment. The noise environment of the Project site is dominated by traffic noise on Lake Vista Drive, and more distant traffic noise on Mulholland Highway. Minor noise sources include air conditioners, bird calls, aircraft overflights and human voices.

Project Site Noise Measurements. Baseline ambient noise levels were measured at the Project site (east side of the Lake Vista Drive bridge) on August 8, 2018 as part of a Noise Technical Report prepared for the Santa Monica Mountains North Area Plan. Ambient noise data collected is summarized in Table 6.

Table 6. Summary of Ambient Noise Data Collected on August 8, 2018 (dBA)

Time Period	Noise Level (dBA Lmin)	Noise Level (dBA Lmax)	Noise Level (dBA Leq)
1:00 to 2:00 p.m.	38.8	70.3	51.4
8:00 to 9:00 p.m.	31.9	80.1	50.8

Noise Restrictions. Operation. Los Angeles County has developed exterior noise standards as part of its Noise Control Ordinance, which include a residential daytime standard of 50 dBA L50. Since the proposed Project would not involve any long-term or operational noise, these standards are not applicable.

Construction. Construction noise generated by mobile equipment at single-family residential structures shall not exceed 75 dBA Leq (except Sundays and legal holidays) from 7 a.m. to 8 p.m. and 60 dBA Leq from 8 p.m. to 7 a.m. including Sundays and legal holidays (Los Angeles County Code Section 12.08.440). Construction noise generated by stationary equipment at single-family residential structures shall not exceed 60 dBA Leq (except Sundays and legal holidays) from 7 a.m. to 8 p.m. and 50 dBA Leq from 8 p.m. to 7 a.m. including Sundays and legal holidays (Los Angeles County Code Section 12.08.440).

Vibration Concerns. Caltrans has published a Transportation and Construction Vibration Guidance Manual, which provides criteria for allowable vibration in terms of potential annoyance to people, as well as potential damage to buildings. The following thresholds for continuous/frequent intermittent sources such as construction equipment are provided by Caltrans (2013), expressed as the peak particle velocity (PPV, inch/seconds):

- Human effects: barely perceptible – 0.01; distinctly perceptible – 0.04; strongly perceptible – 0.10
- Damage to structures: fragile buildings - 0.1; older residential – 0.3; new residential and commercial – 0.5

3.13.2 Impact Analysis

a. The proposed Project would not result in any long-term noise. A peak day construction scenario (siphon installation) was analyzed using the Roadway Construction Noise Model developed by the Federal Highway Administration to identify peak noise levels at the nearest residence (on Laguna Circle Drive, northeast of the Lake Vista Drive bridge). Equipment assumed to be operating during peak hour included the sewer bypass pump, generator powering the pump, two wheeled loaders, a dozer and excavator. The modeled construction noise level for this scenario is 77.5 dBA at the adjacent residence. This value exceeds the County's daytime construction noise restriction for mobile equipment of 75 dBA Leq.

The sewer bypass pump and generator would operate continuously throughout the construction period, including evening and nighttime hours. Noise associated with this equipment was estimated at the nearest residence using the Roadway Construction Noise Model. The modeled construction noise level for this scenario is 66.5 dBA at the adjacent residence. This value exceeds the County's construction noise restrictions for stationary equipment. Therefore, Project-related construction noise impacts are considered potentially significant.

b. Heavy equipment associated with siphon installation would generate the highest ground-borne noise and vibration levels of Project construction activities. The peak day vibration level (PPV) was estimated for siphon installation using California Department of Transportation's Transportation and Construction Vibration Guidance Manual. The estimated vibration level is 0.021 inches/second at the nearest structure (northeast residence), which would be barely perceptible and would not result in any structural damage. Overall, Project-related ground-borne noise and vibration would be short-term, not result in any damage to structures and considered less than significant.

c. The Project site is not located in proximity to a public or private airport and would not increase the exposure of the public to aviation noise.

3.13.3 Mitigation Measures and Residual Impacts

MM N-1. A minimum 10-foot-tall temporary sound wall (with a sound transmission class of STC-30 or better, minimum sound transmission loss of 11 dB at 63 hertz) shall be installed along the top of the east bank of Medea Creek to reduce noise impacts to the adjacent residence. The sound wall shall extend from Lake Vista Drive approximately 200 feet to the north and located to not prevent access to the adjacent residence. The sound wall may be removed following completion of siphon installation (when equipment activity and noise levels are reduced) to allow construction of the eastern access road and connection manholes, and installation of tie-in pipes.

MM N-2. The sewer bypass pump shall be located below grade or surrounded with acoustic shielding. The electrical generator powering the pump shall be provided with a factory-supplied sound attenuated enclosure.

Implementation of the above measures would reduce construction noise impacts to a level of less than significant.

3.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Induce substantial 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)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Setting

Based on estimates provided by the California Department of Finance, the January 2022 population of Los Angeles County is 9,861,224 and the number of housing units is 3,635,136.

3.14.2 Impact Analysis

a. The proposed Project does not involve any new land uses or extension of infrastructure. No increase in wastewater conveyance or treatment capacity would occur as a result of the Project. Therefore, the Project would not induce development or population growth.

b. No people or housing would be displaced by proposed Project components and construction of replacement housing would not be necessary.

3.14.3 Mitigation Measures and Residual Impacts

None required.

3.15 PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. 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 any of the public services?				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.15.1 Setting

The Los Angeles County Fire Department provides fire protection services to the Project site. The nearest fire station is Station no. 65, located at 4206 N. Cornell Road in Agoura Hills.

The Los Angeles County Sheriff's Department provides police protection service to the Project site. The nearest Sheriff station is the Malibu/Lost Hills Sheriff's Station located at 27050 Agoura Road in the City of Agoura Hills.

The nearest school is Agoura High School located 2.8 miles to the north of the Project site.

3.15.2 Impact Analysis

a. The proposed Project would not provide or increase the demand for public services or facilities. Therefore, no impacts to schools, parks and other public facilities or increased demand for such facilities would occur.

3.15.3 Mitigation Measures and Residual Impacts

None required.

3.16 RECREATION

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Setting

Recreational areas in proximity to the Project site include Malibu Creek State Park (to the east) and Paramount Ranch (part of the Santa Monica Mountains National Recreation Area, located to the north). Recreational facilities/activities (fishing, sailing, rowing, picnicking) within and adjacent to Malibou Lake are private and only available to residents.

3.16.2 Impact Analysis

a. The proposed Project would not result in population growth and would not increase the use of existing neighborhood or regional parks, or any other recreational facilities. As such, the proposed Project would not result in the accelerated physical deterioration of any recreational facilities.

b. The proposed Project would not involve the construction or expansion of any recreational facilities. Thus, the Project would not have any impacts on the physical environment associated with the construction or use of recreational facilities.

3.16.3 Mitigation Measures and Residual Impacts

None required.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?	☐	☐	☐	☒
b. Would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☐	☒

3.17.1 Setting

The Project site is accessed from Mulholland Highway via Lake Vista Drive. Some motorists may access the Project site from Kanan Road via Cornell Road which becomes Lake Vista Drive south of the Mulholland Highway intersection.

3.17.2 Impact Analysis

a. The proposed Project does not include any new land uses and would not create demand for transportation facilities and would not conflict with local or regional transportation planning.

b. The proposed Project would generate temporary construction-related vehicle trips, vehicle miles traveled and associated climate change and air quality impacts. The proposed Project would generate up to 22 one-way vehicle trips per day associated with worker and equipment transportation and transportation of construction materials. No new long-term vehicle trips would be generated. Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact (Governor's Office of Planning and Research, 2018). Therefore, the Project is consistent with Section 15064.3 of the State CEQA Guidelines.

c. The proposed Project does not involve any roadway improvements or otherwise include features that could increase traffic hazards.

d. The proposed Project would not require emergency services or create conditions that would impede emergency access for adjacent land uses.

3.17.3 Mitigation Measures and Residual Impacts

None required.

3.18 TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. 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, cultural landscape that is geographically defined in terms of the size and scope of the landscape, scared place, or object with cultural value to a California Native American tribe that is:				
1. Listed or eligible for listing in the California Register of Historic Resources, or in the local register of historic 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 subdivision c. 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.	☐	☐	☐	☒

3.18.1 Setting

The cultural resources record search and Sacred Lands File search did not identify any tribal resources in the immediate project area. The District mailed formal notification of the proposed Project to traditionally and culturally affiliated tribes as required by Public Resources Code Section 21080.3.1(b) on February 17, 2023. The Fernandeno Tataviam Band of Mission Indians responded by email on February 27, 2023 requesting an on-line application form be completed to initiate consultation. The District completed the application form and submitted the form with a $75 application fee on February 28, 2023. The District provided the internal draft Initial Study, and the results of the cultural resources record search and Sacred Lands File search to the tribal contact (Sarah Brunzell). Ms. Brunzell assigned the project a sensitivity level of "Medium" and requested a $450 consultation fee. The District responded on March 7, 2023, indicating a willingness to consult but did not feel the tribe has the legal authority to charge a consultation fee. The tribe has not responded to date.

3.18.2 Impact Analysis

a. No tribal resources were identified by the cultural resources record search and Sacred Lands File search, or by any traditionally and culturally affiliated tribes.

3.18.3 Mitigation Measures and Residual Impacts

None required.

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Require or result in the 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?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable development during normal, dry and multiple dry years?	☐	☐	☐	☒
c. Result in a 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?	☐	☐	☐	☒
d. 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?	☐	☐	☒	☐
e. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.19.1 Setting

Utility providers serving the Project area include:

- Water supply: Las Virgenes Municipal Water District
- Municipal wastewater collection and treatment: Las Virgenes Municipal Water District
- Solid waste collection: Waste Management, Inc.
- Solid waste disposal: Calabasas Landfill

3.19.2 Impact Analysis

a. The proposed Project would not involve any new land uses that may require the construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas or telecommunications facilities.

b. Small amounts of potable water would be used during construction of the proposed Project for soil compaction, concrete mixing and dust control. However, this temporary consumption would not affect the Las Virgenes Municipal Water District's ability to meet the demand for existing and reasonably foreseeable development.

c. The proposed Project would not generate municipal wastewater and would not affect the capacity of any wastewater treatment provider. Surface water pumped from the siphon replacement work area in the lakebed would be discharged to the District's sewer and treated at the Tapia Water Reclamation Facility. This discharge would be a one-time event and would not affect the District's ability to serve its customers.

d. A small amount of solid waste would be generated by Project construction, including demolition-related materials (steel, concrete) and construction materials packaging. These materials would be recycled to the extent feasible and would not affect the capacity of local landfills or impair attainment of State-mandated municipal solid waste reduction goals. Any excess earth material generated by construction activities would be offered to contractors for use at other construction sites.

e. The District complies with all federal, state and local statutes relating to solid waste, and would continue to do so during the construction of the proposed Project. As such, no impacts of this type are expected to result.

3.19.3 Mitigation Measures and Residual Impacts

None required.

3.20 WILDFIRE

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project?				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. 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?	☐	☐	☐	☒
c. 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?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
d. 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?	☐	☐	☐	☒

3.20.1 Setting

The Project site is located within a Very High Fire Hazard Severity Zone as designed by the California Department of Forestry and Fire Protection.

3.20.2 Impact Analysis

a. The proposed Project would not impair emergency response or evacuation.

b. The proposed Project would not involve any new habitable structures or have any occupants and would not exacerbate existing wildfire risks.

c. The proposed Project would not require any supporting infrastructure or increased maintenance of existing infrastructure supporting wildfire response.

d. The proposed Project would not increase the risk of people or structures to wildfire-related flooding and landslides.

3.20.3 Mitigation Measures and Residual Impacts

None required.

4.0 CUMULATIVE IMPACTS

Cumulative impacts are defined as two or more individual effects which, when considered together are considerable, or which compound or increase other environmental impacts. Under Section 15064 of the State CEQA Guidelines, the lead agency (District) must identify cumulative impacts, determine their significance and determine if the effects of a project are cumulatively considerable.

4.1 DESCRIPTION OF CUMULATIVE PROJECTS

The following is a list of recently approved projects and projects currently under review in the Project area that may substantially contribute to significant impacts to the environment:

- City of Agoura Hills: 60 duplex residential units and church facility (under review)
- City of Agoura Hills: 60 multi-family townhouse units (under review)
- City of Agoura Hills: 20,000 square foot restaurant and play areas (under review)
- City of Agoura Hills: mixed use development with 78 multi-family residential units, office, retail and restaurant uses (under review)
- City of Agoura Hills: mixed use development with 15 residential units and retail uses (under review)
- City of Agoura Hills: 76 bed senior care facility (under review)
- City of Agoura Hills: two industrial buildings totaling 72,000 square feet (under review)
- City of Agoura Hills: seven industrial buildings totaling 103,000 square feet (approved)
- City of Agoura Hills: five office buildings totaling 23,000 square feet (approved)
- City of Calabasas: Mulholland Highway Safety Improvements, addresses 2.4 miles of Mullholland Highway, including widening the road shoulder, realigning the roadway centerline as needed to provide wider shoulders, slope grading to prevent erosion, slope stabilization improvements, a retaining wall and intersection improvements (under review).

4.2 DISCUSSION OF CUMULATIVE IMPACTS

4.2.1 Aesthetics

The proposed Project would not incrementally contribute to aesthetics impacts of the cumulative projects because none of the other cumulative projects would be visible from the same public viewing areas.

4.2.2 Air Quality

Construction-related air pollutant emissions associated with the Project would incrementally contribute to air pollutant emissions of the cumulative projects. However, the Project's incremental contribution (as mitigated) to cumulative air quality impacts would not be considerable.

4.2.3 Biological Resources

The proposed Project would not incrementally contribute to upland habitat loss and removal of oak trees that would occur with implementation of the cumulative projects. Overall, the Project's incremental contribution to cumulative biological resources impacts would not be considerable.

4.2.4 Cultural Resources

The proposed Project may incrementally contribute to cultural resources impacts of the cumulative projects. However, mitigation is provided to avoid significant impacts and the Project's incremental contribution to cumulative cultural resources impacts would not be considerable.

4.2.5 Geology and Soils

Impacts of the proposed Project related to geology and soils would be site specific and not incrementally contribute to impacts of the cumulative projects.

4.2.6 Greenhouse Gas Emissions

By their nature and potential global effects, greenhouse gas emissions are a cumulative issue. The Project would generate greenhouse gas emissions during construction, which would incrementally contribute to cumulative impacts. However, Project emissions would be much less than any adopted threshold and are considered less than significant on a cumulative basis.

4.2.7 Water Resources

Potential construction-related surface water quality degradation associated with the Project may incrementally contribute to water quality impacts of cumulative projects that drain to Medea Creek. Implementation of a stormwater pollution prevention plan required under the NPDES General Permit would minimize water quality impacts such that the incremental contribution to cumulative water quality impacts would not be considerable.

4.2.8 Noise

Construction-related noise associated with the cumulative projects would not be additive, because it would not affect the same noise receptors. The Project's noise impacts would be mitigated and the incremental contribution to cumulative noise impacts would not be considerable.

4.2.9 Transportation

Temporary construction-related vehicle trips and miles travelled would be minor and consistent with local transportation planning. No long-term vehicle trips or vehicle miles travelled would result from Project implementation. Therefore, the Project's incremental contribution to transportation impacts would not be cumulatively considerable.

5.0 MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE --	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a. Does the project have the potential 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 endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that 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, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a. Project impacts on wildlife habitat, rare or endangered plants would be less than significant. Impacts to two-striped garter snake may be significant; however, mitigation is provided to avoid significant impacts. The Project may adversely affect cultural resources, but mitigation is provided to avoid significant impacts.

b. The incremental cumulative impacts of the Project would not be cumulatively considerable.

c. The Project (with implementation of air quality and noise mitigation) would not result in significant impacts to humans such as degradation of air quality or water quality, or excessive noise or vibration.

6.0 DETERMINATION OF ENVIRONMENTAL DOCUMENT

On the basis of this evaluation:

[ ] I find the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.

[X] I find that although the Project could have a significant impact on the environment, there will not be a significant effect with the implementation of mitigation measures described in this Initial Study. A MITIGATED NEGATIVE DECLARATION should be prepared.

[ ] I find the Project, individually and/or cumulatively, MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required.

Signature of Person Responsible for Administering the Project Date

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APPENDIX A

VASCULAR PLANT FLORA OBSERVED IN THE VICINITY OF THE MALIBOU LAKE SIPHON REPLACEMENT PROJECT SITE, LOS ANGELES COUNTY, CALIFORNIA

Appendix A

Vascular Plant Flora Observed in the Vicinity of the Malibou Lake Siphon Replacement Project Site
Los Angeles County, California

Scientific Name	Common Name	Habit	Family	Wetland Status	Invasiveness Rating
Ambrosia psilostachya	Western ragweed	PH	Asteraceae	FACU	
Anemopsis californica	Yerba mansa	PH	Sauraceae	OBL	
Artemisia californica	California sagebrush	S	Asteraceae	*	
Artemisia douglasiana	Mugwort	PH	Asteraceae	FAC	
Atriplex lentiformis	Big saltbush	S	Chenopodiaceae	FAC	
Baccharis pilularis	Coyote brush	S	Asteraceae	*	
*Carduus pycnocephalus**	Italian thistle	AH	Asteraceae	*	Moderate
*Carpobrotus edulis**	Hottentot fig	PH	Aizoaceae	*	High
*Conium maculatum**	Poison hemlock	PH	Apiaceae	FACW	Moderate
*Cortaderia selloana***	Pampas grass	PG	Poaceae	FACU	High
*Cotoneaster pannosus***	Cotoneaster	S	Rosaceae	*	Moderate
*Cynodon dactylon**	Bermuda grass	PG	Poaceae	FACU	Moderate
*Erodium cicutarium**	Redstem filaree	AH	Geraniaceae	*	Limited
*Eucalyptus camadulensis***	Red gum	T	Myrtaceae	FAC	Limited
*Eucalyptus cladocalyx***	Sugar gum	T	Myrtaceae	*	Watch
Euphorbia crenulata	Chinese caps	AH	Euphorbiaceae	*	
*Euphorbia peplus**	Petty spurge	AH	Euphorbiaceae	*	
*Foeniculum vulgare**	Sweet-fennel	PH	Apiaceae	*	Moderate
Galium aparine	Sticky-willy	AH	Rubiaceae	FACU	
*Hedera helix***	English ivy	PV	Araliaceae	FACU	High
Heterotheca grandiflora	Telegraph weed	PH	Asteraceae	*	
*Hirschfeldia incana**	Summer mustard	BH	Brassicaceae	*	Moderate
*Hordeum murinum**	Hare barley	AG	Poaceae	FACU	Moderate
*Lamium amplexicaule**	Henbit	AH	Lamiaceae	*	
Malacothamnus fasciculatus ssp. fasciculatus	Chaparral bush mallow	S	Malvaceae	*	
*Malva parviflora**	Cheese-weed	AH	Malvaceae	*	
*Medicago polymorpha**	Bur clover	AH	Fabaceae	FACU	Limited
*Melilotus albus**	White sweet-clover	PH	Fabaceae	*	
*Nerium oleander***	Oleander	S	Apocynaceae	*	
*Pennisetum setaceum**	Fountain grass	PG	Poaceae	*	Moderate
*Pinus halepensis***	Aleppo pine	T	Pinaceae	*	
*Plantago lanceolata**	English plantain	PH	Plantaginaceae	FAC	Limited
*Plantago major**	Comon plantain	PH	Plantaginaceae	FAC	
Platanus racemosa	Western sycamore	T	Plantanaceae	FAC	
*Polygonum aviculare**	Knot-weed	AH	Polygonaceae	FAC	
Quercus agrifolia (planted)	Coast live oak	T	Fagaceae	*	
*Romneya coulteri***	Matilija poppy	S	Papaveraceae	*	
*Rosmarinus officinale***	Rosemary	S	Lamiaceae	*	
*Rosa sp.***	Ornamental rose	S	Rosaceae	*	
Salix lasiolepis	Arroyo willow	T	Salicaceae	FACW	
*Salsola tragus**	Russian thistle	AH	Chenopodiaceae	FACU	Limited
Salvia leucophylla	Purple sage	S	Lamiaceae	*	

Appendix A

Vascular Plant Flora Observed in the Vicinity of the Malibou Lake Siphon Replacement Project Site
Los Angeles County, California

Scientific Name	Common Name	Habit	Family	Wetland Status	Invasiveness Rating
*Schinus molle**	Pepper tree	T	Anacardiaceae	FACU	Limited
*Senecio vulgaris**	Common groundsel	AH	Asteraceae	FACU	
Solanum douglasii	White nightshade	AH	Solanaceae	FAC	
*Sonchus oleraceus**	Common sow thistle	AH	Asteraceae	UPL	
*Stipa miliacea var. miliacea**	Smilo grass	PG	Poaceae	*	Limited
*Taraxacum officinale**	Dandelion	PH	Asteraceae	FACU	
Typha domingensis	Southern cattail	S	Typhaceae	OBL	
Umbellularia californica	California bay	T	Lauraceae	FAC	
*Vinca major***	Greater periwinkle	PV	Apocynaceae	FACU	Moderate

Notes:
Scientific nomenclature follows The Jepson Manual Second Edition (Baldwin et al., 2012), including supplements (old names in brackets).
An "*" indicates non-native species which have become naturalized or persist without cultivation.
An "**" indicates species which have been planted and may not persist without cultivation.

Habit Definitions:
AF = annual fern or fern ally.
AG = annual grass.
AH = annual herb.
BH = biennial herb.
PF = perennial fern or fern ally.
PG = perennial grass.
PH = perennial herb.
PV = perennial vine.
S = shrub.
T = tree.

Invasiveness Rating from the online database of the California Invasive Plant Council

Wetland Status from Arid West 2020 Regional Wetland Plant List
OBL - Obligate wetland: almost always occurs in wetlands (>99% probability)
FACW - Facultative-Wetland: usually occurs in wetlands (67-99% probability)
FAC - Facultative: equally likely to occur in wetlands or non-wetlands (34-66% probability)
FACU - Facultative-Upland: usually occurs in non-wetlands (1-33% probability)
UPL - Upland: almost always occurs in non-wetlands (>99% probability)
*: not addressed in the wetland plant list, non-wetland species

APPENDIX B

VERTEBRATE ANIMAL SPECIES OBSERVED IN THE VICINITY OF THE MALIBOU LAKE SIPHON REPLACEMENT PROJECT SITE, LOS ANGELES COUNTY, CALIFORNIA

Appendix B

Vertebrate Animal Species Observed in the Vicinity of the Malibou Lake Siphon Replacement Project Site, Los Angeles County, California

FAMILY Common Name	Scientific Name	Habitat Use(1)	Status(2)
BIRDS			
Anatidae			
Canada goose	*Branta canadensis*	B/F	--
Trochilidae			
Allen's hummingbird	*Selasphorus sasin*	B/F	--
Picidae			
Northern flicker	*Colaptes cafer*	B/F	--
Acorn woodpecker	*Melanerpes formicivorous*	B/F	--
Tyrannidae			
Black phoebe	*Sayornis nigricans*	B/F	--
Corvidae			
American crow	*Corvus brachyrhynchos*	B/F	--
Western scrub jay	*Aphelocoma californica*	B/F	--
Paridae			
Oak titmouse	*Baeolophus inornatus*	B/F	BCC
Regulidae			
Ruby-crowned kinglet	*Regulus calendula*	F	--
Bombycillidae			
Cedar waxwing	*Bombycilla cedrorum*	F	--
Sturnidae			
European starling	*Sturnus vulgaris*	B/F	--
Emberizidae			
Yellow-rumped warbler	*Dendroica coronata*	F	--
White-crowned sparrow	*Zonotrichia leucophrys*	B/F	--
Song sparrow	*Melospiza melodia cooperii*	B/F	--
Red-winged blackbird	*Agelaius phoeniceus*	F	--
Fringillidae			
Lesser goldfinch	*Spinus psaltria*	B/F	--

(1) Habitat Use
- B= Breeding
- F= Foraging

(2) Status
- CP= Protected under California Fish & Game Code
- CSC= CDFW Species of Special Concern
- SA= CDFW Special Animal
- SE= State Endangered
- FE= Federal Endangered
- WL= CDFW Watch List
- BCC=Birds of Conservation Concern

Fish nomenclature based on Swift et al. (1993)
Amphibian and reptile nomenclature based upon Jensen (1983)
Bird nomenclature based upon American Ornithologists Union (2020)
Mammal nomenclature based upon Hall (1981)

APPENDIX C

PUBLIC COMMENTS AND RESPONSES

APPENDIX C
COMMENTS RECEIVED ON THE DRAFT MITIGATED NEGATIVE DECLARATION

Party	Date
California Department of Fish and Wildlife	April 27, 2023

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 27, 2023

Alex Leu
Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA 91302
ALeu@lvmwd.com

Subject: Mitigated Negative Declaration for Malibou Lake Siphon Replacement Project, SCH# 2023030553, Las Virgenes Municipal Water District, Los Angeles County

Dear Mr. Leu:

The California Department of Fish and Wildlife (CDFW) has reviewed the Malibou Lake Siphon Replacement Project (Project) Initial Study/Mitigated Negative Declaration (MND) from the Las Virgenes Municipal Water District (LVMWD). CDFW appreciates the opportunity to provide comments regarding aspects of the Project that could affect fish and wildlife resources and be subject to CDFW's regulatory authority under the Fish and Game Code.

CDFW's Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & G. Code, §§ 711.7, subdivision (a) & 1802; Pub. Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 *et seq*.). Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by State law, of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 *et seq.*), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & G. Code, §1900 *et seq.*), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

Project Description and Summary

Objective: The Project involves the replacement of the existing sewer siphon crossing of Medea Creek with a new siphon directly north of the existing siphon alignment. The proposed

replacement siphon crossing would consist of two high-density polyethylene pipelines (12-inch and 24-inch in diameter) encased in concrete. The existing concrete-encased sewer siphon would be completely removed from the Medea Creek channel along with the existing inlet and outlet structures and backfilled with clean earth material to match the surrounding existing grades.

Location: The Project site is located at the Lake Vista Drive crossing of Medea Creek at its confluence with Malibou Lake, Los Angeles County, California.

Comments and Recommendations

CDFW offers the comments and recommendations below to assist the LVMWD in adequately identifying, avoiding, and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions are also included to improve the environmental document. CDFW recommends the measures or revisions below be included in a science-based monitoring program that contains adaptive management strategies as part of the Project's CEQA mitigation, monitoring and reporting program (Pub. Resources Code, § 21081.6; CEQA Guidelines, § 15097).

Specific Comments

Comment #1: Impacts to Streams

Issue: Project activities will impact Medea Creek.

Specific impacts: Development and dewatering on the Project site may result in erosion and earth movement that could impair streams up and downstream of the Project site.

Why impacts would occur: According to the MND, the Project requires the installation of cofferdams, dewatering, and riparian vegetation removal. The MND does not discuss the necessity for a Lake and Streambed Alteration Agreement or any mitigation for impacts to the stream and associated vegetation. Therefore, the Project activities from dewatering would
1. (temporarily) remove or otherwise alter existing streams or their function and associated habitat on the Project site. Biological resources downstream and beyond the Project development footprint may also be impacted by Project related releases of sediment and altered watershed effects.

Evidence impacts would be significant: CDFW exercises its regulatory authority as provided by Fish and Game Code section 1600 et seq. to conserve fish and wildlife resources which includes rivers, streams, or lakes and associated natural communities. Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW prior to beginning any activity that may do one or more of the following:

- Divert or obstruct the natural flow of any river, stream, or lake;
- Change the bed, channel, or bank of any river, stream, or lake;
- Use material from any river, stream, or lake; or,
- Deposit or dispose of material into any river, stream, or lake.

CDFW requires a Lake and Streambed Alteration (LSA) Agreement when a project activity may substantially adversely affect fish and wildlife resources. The Project may result in significant impacts on streams and associated natural communities because of the upslope proximity to these resources. Without appropriate mitigation, the Project continues to have a substantial adverse direct, indirect, and cumulative effect, either directly or through habitat modifications, on fish and wildlife resources, including rivers, streams, or lakes and associated natural communities identified by CDFW.

1. **Recommended Potentially Feasible Mitigation Measures:**

Mitigation Measure #1: The Project Applicant should be required to notify CDFW pursuant to Fish and Game Code 1602 and obtain an LSA Agreement from CDFW prior to obtaining a grading permit. The Project applicant should comply with the mitigation measures detailed in a LSA Agreement issued by CDFW. The Project applicant should also provide compensatory mitigation at no less than 2:1 for the impacted stream and associated vegetation community, or at a ratio acceptable to CDFW. Please visit CDFW's Lake and Streambed Alteration Program webpage for more information (CDFWa 2023).

2. **Mitigation Measure #2:** CDFW recommends the LSA Notification include a hydrology report to evaluate whether altering upslope vegetation within the Project site may impact hydrologic activity downslope and downstream of the Project site. The hydrology report should also include an analysis to determine if Project activities will impact the current hydrologic regime or change the velocity of flows entering and downstream of the Project site. CDFW also requests a hydrological evaluation of any potential scour or erosion at the Project site and downstream due to a 100, 50, 25, 10, 5, and 2-year frequency storm event for existing and proposed conditions to determine how the Project activities may change the hydrology on site.

3. **Mitigation Measure #3:** CDFW recommends that any Best Management Practice (BMPs) infrastructure that are installed should be monitored and repaired, if necessary, to ensure maximum erosion, sediment, and pollution control. The Project proponent should prohibit the use of erosion control materials potentially harmful to fish and wildlife species, such as mono-filament netting (erosion control matting) or similar material, within stream areas. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the Project site should be free of nonnative plant materials. Fiber rolls or erosion control mesh should be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.

4. **Recommendation #1:** CDFW's issuance of an LSA Agreement for a project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the CEQA document from the lead agency/project applicant for the project. To minimize additional requirements by CDFW pursuant to Fish and Game Code section 1600 et seq. and/or under CEQA, a project's CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement. To compensate for any on- and off-site impacts to aquatic and riparian resources, additional mitigation conditioned in any LSA Agreement may include the following: erosion and pollution control measures; avoidance of resources; protective measures for downstream resources; on- and/or off-site habitat creation; enhancement or restoration; and/or protection

and management of mitigation lands in perpetuity.

Comment #2: Impacts on Species of Special Concern – Reptiles

Issue: The Project may impact two-striped garter snake (*Thamnophis hammondii*), a species designated as California Species of Special Concern (SSC).

Specific impacts: Project construction and activities, directly or through habitat modification, may result in direct injury or mortality, reduced reproductive capacity, population declines, or local extirpation of an SSC. Also, loss of foraging, breeding, or nursery habitat for an SSC may occur.

Why impacts would occur: The MND indicates, "Two-striped garter snake has been reported from both Medea Creek and Triunfo Canyon Creek upstream of Malibou Lake." However, mitigation as currently written in MM BIO-1, may be insufficient to reduce significant impacts to two-striped garter snake below a significant level. Primarily, a biologist was not required to be present during all activities involving impacts to the stream, but only activities related to the installation of the cofferdams. In addition, the MND does not require a biologist to have appropriate handling permits, despite the mitigation involving capture and relocation of any two-striped garter snakes. Lastly, the mitigation does not detail protocols for passive relocation or proper handling techniques to prevent injury or mortality to the maximum extent feasible to any entrapped SSC. As such, there is potential for the Project and improper mitigation to impact SSC. Without appropriate avoidance or minimization measures, impacts to an SSC could result from dewatering activities and vegetation removal. Wildlife may be trapped or crushed under structures. Large equipment, equipment and material staging, and vehicle and foot traffic could trample or bury wildlife. SSC could be injured or killed. Impacts on these SSC are more likely to occur because these are cryptic species.

5.

Evidence impacts would be significant: A California Species of Special Concern is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: is extirpated from the State or, in the case of birds, is extirpated in its primary season or breeding role;

- is listed as ESA-, but not CESA-, threatened, or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and/or
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for CESA threatened or endangered status (CDFWb 2023).

CEQA provides protection not only for CESA-listed species, but for any species including but not limited to SSC that can be shown to meet the criteria for State listing. These SSC meet the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15380). Therefore, take of SSC could require a mandatory finding of significance (CEQA Guidelines, § 15065).

5. Impacts to any sensitive or special status species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. The MND does not provide sufficient mitigation for potential impacts on SSC. Inadequate avoidance, minimization, and mitigation measures for impacts to sensitive or special status species will result in the Project continuing to have a substantial adverse direct, indirect, and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species by CDFW.

Recommended Potentially Feasible Mitigation Measure(s):

6. **Mitigation Measure #4: Scientific Collecting Permit** – CDFW recommends the LVMWD require the Project Applicant retain a qualified biologist with appropriate handling permits, or should obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with Project construction and activities. CDFW has the authority to issue permits for the take or possession of wildlife, including mammals; birds, nests, and eggs; reptiles, amphibians, fish, plants; and invertebrates (Fish & G. Code, §§ 1002, 1002.5, 1003). Effective October 1, 2018, a Scientific Collecting Permit is required to monitor project impacts on wildlife resources, as required by environmental documents, permits, or other legal authorizations; and, to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with otherwise lawful activities (Cal. Code Regs., tit. 14, § 650). Please visit CDFW's Scientific Collection Permits webpage for information (CDFWc 2023). Pursuant to the California Code of Regulations, title 14, section 650, the Project Applicant/qualified biologist must obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with Project construction and activities. The LSA Agreement may provide similar take or possession of species as described in the conditions of the agreement (see Comment #1).

7. **Mitigation Measure #5: Survey –** The City should retain a qualified biologist with experience surveying for the specific SSC. Prior to commencing any Project-related ground-disturbing activities, the qualified biologist should conduct surveys for where suitable habitat is present. Focused surveys should be conducted during a time of day/year when SSC are evident and identifiable. The surveys should include mapping of current locations of special-status wildlife species for avoidance and relocation efforts and to assist construction monitoring efforts. The survey should be conducted so that 100 percent coverage of the Project site and surrounding areas is achieved.

If SSC are detected, the qualified biologist should use visible flagging to mark the location where SSC was detected. The qualified biologist should take a special-status wildlife species found on site during surveys. If an Endangered Species Act-listed species is found prior to or during grading of the site, the USFWS should also be notified. Additional avoidance and minimization measures may need to be developed with CDFW/USFWS, a photo of each location, map each location, and provide the specific species detected at that location. The qualified biologist should provide a summary report of SSC surveys to the City before any Project-related ground-disturbing activities. The CDFW should be notified and consulted regarding the presence of any SSC.

8. **Mitigation Measure #6: Species Protocols –** Where applicable, wildlife should be protected, allowed to move away on its own (non-invasive, passive relocation) to adjacent appropriate habitat within the open space on site or in suitable habitat adjacent to the Project area (either

way, at least 200 feet from the grading limits). Special status wildlife should be captured only by a qualified biologist with proper handling permits. The qualified biologist should prepare a species-specific list (or plan) of proper handling and passive relocation protocols. The list (or plan) of protocols should be implemented during Project construction and activities/biological
8. construction monitoring. The City/qualified biologist may consult with CDFW/USFWS to prepare species-specific protocols for proper handling and passive relocation procedures. Only a USFWS approved biologist should be authorized to capture and relocate ESA-listed species. A passive relocation plan should be submitted to CDFW for review and comment prior to implementing Project-related ground-disturbing activities.

Mitigation Measure #7: Worker Environmental Awareness Training – The City in consultation with a qualified biologist should prepare worker environmental awareness training prior to implementation of Project ground-disturbing activities. The training should include effective, specific, enforceable, and feasible actions. The qualified biologist should have prepared maps showing locations where SSC were detected and share this information to workers as part of training. The qualified biologist should meet with the construction crew at the Project site at the onset of construction to educate the construction crew on the following: 1) a
9. review of the Project boundaries; 2) all special-status species that may be present, their habitat, and proper identification; and 3) the specific mitigation measures that will be incorporated into the construction effort. The qualified biologist should communicate to workers that upon encounter with a SSC, work must stop, a qualified biologist must be notified, and work may only resume once a qualified biologist has determined that it is safe to do so. Any contractor or employee that inadvertently kills or injures a special-status animal, or finds one either dead, injured, or entrapped, should immediately report the incident to the qualified biologist and/or onsite representative identified in the worker training.

Mitigation Measure #8: Injured or Dead Wildlife – If any SSC are harmed during relocation or a dead or injured animal is found, work in the immediate area should stop immediately, the qualified biologist should be notified, and dead or injured wildlife documented immediately. A
10. formal report should be sent to CDFW and the LVMWD within three calendar days of the incident or finding. The report should include the date, time of the finding or incident (if known), and location of the carcass or injured animal and circumstances of its death or injury (if known). Work in the immediate area may only resume once the proper notifications have been made and additional mitigation measures have been identified to prevent additional injury or death.

Mitigation Measure #9: CDFW recommends modifying MM BIO-1 on page 29 of the MND to include underlined language and remove language with strikethrough.

> "Dewatering of the lakebed ~~following~~ and installation of the cofferdams shall be monitored by a qualified biologist with appropriate handling permits. The dewatering
11. pump intake shall have a ~~0.5-inch (or smaller)~~ fine mesh screen (size determined by qualified biologist) to prevent entrainment of two-striped garter snake. In the event a two striped garter snake is encountered, a qualified biologist shall adhere to the species-specific list (or plan) of proper handling and passive relocation protocols. At a minimum, the qualified biologist shall use a seine (or appropriate hand-held nets) to capture any two striped garter snakes in the dewatered area and relocate them to suitable habitat along the lake shoreline at least 500 feet from the work area."

Comment #3: Impacts to Nesting Birds

Issue: Figures 1,2, and 4 show trees around the Project site that may provide habitat for nesting birds.

Specific impacts: Construction during the breeding season of nesting birds could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment in trees adjacent to a project site.

Why impact would occur: The MND does not provide any avoidance or minimization measures for nesting birds. Without any protective measures, impacts to nesting birds could result from ground disturbing activities related to housing development. Impacts could result from noise disturbances, increased human activity, increased lighting, dust, vegetation clearing, ground disturbing activities (e.g., staging, access, excavation, grading), and vibrations caused by heavy equipment. Project disturbance activities could result in mortality or injury to nestlings, as well temporary or long-term loss of suitable foraging habitats. Construction during the breeding season of nesting birds could result in the incidental loss of breeding success or otherwise lead to nest abandonment.

Evidence impact would be significant: The loss of occupied habitat or reductions in the number of rare bird species, either directly or indirectly through nest abandonment or reproductive suppression, would constitute a significant impact absent appropriate mitigation. Furthermore, nests of all native bird species are protected under state laws and regulations, including Fish and Game Code sections 3503 and 3503.5.

12.

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #10: To protect nesting birds that may occur on site or adjacent to the Project boundary, CDFW recommends that no construction occur from February 1 through September 15, as early as January 1 for some raptors.

Mitigation Measure #11: If avoidance during the nesting season is not feasible, a qualified biologist should complete a survey for nesting bird activity within a 500-foot radius of the construction site. The nesting bird surveys should be conducted at appropriate nesting times and concentrate on potential roosting or perch sites. CDFW recommends the Lead Agency require surveys be conducted by a qualified biologist no more than 7 days prior to the beginning of any Project-related activity likely to impact raptors and migratory songbirds, for the entire Project site. If Project activities are delayed or suspended for more than 7 days during the breeding season, repeat the surveys. If nesting raptors and migratory songbirds are identified, CDFW recommends the following minimum no-disturbance buffers be implemented: 300 feet around active passerine (perching birds and songbirds) nests, 500 feet around active non-listed raptor nests and 0.5 mile around active listed bird nests.

These buffers should be maintained until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Mitigation Measure #12: It should be noted that the temporary halt of Project activities within nesting buffers during nesting season does not constitute effective mitigation for the purposes of

offsetting Project impacts associated with habitat loss. Additional mitigation would be necessary to compensate for the permanent removal of nesting habitat within the Project site based on acreage of impact and vegetation composition. CDFW shall be consulted to determine proper
12. mitigation for impacts to occupied habitat depending on the status of the bird species. Mitigation ratios would increase with the occurrence of a California Species of Special Concern and would further increase with the occurrence of a CESA-listed species.

Additional Comments and Recommendations

Recommendation #2 – Data: CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special status species detected by completing and submitting CNDDB Field Survey Forms (CDFW 2022b). This includes all
13. documented occurrences of any special status species. The LVMWD should ensure the data has been properly submitted, with all data fields applicable filled out, prior to Project ground-disturbing activities. The data entry should also list pending development as a threat and then update this occurrence after impacts have occurred. The LVMWD should provide CDFW with confirmation of data submittal.

Recommendation #3 – MMRP: Per Public Resources Code section 21081.6(a)(1), CDFW
14. has provided the LVMWD with a summary of our suggested mitigation measures and recommendations in the form of an attached Draft Mitigation and Monitoring Reporting Plan (MMRP; Attachment A). A final MMRP shall reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

Filing Fees

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing
15. fees is necessary. Fees are payable upon filing of the Notice of Determination by the LVMWD and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required for the underlying Project approval to be operative, vested, and final (Cal. Code Regs., tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

Conclusion

We appreciate the opportunity to comment on the Project to assist the LVMWD in adequately analyzing and minimizing/mitigating impacts to biological resources. CDFW requests an
16. opportunity to review and comment on any response that the LVMWD has to our comments and to receive notification of any forthcoming hearing date(s) for the Project [CEQA Guidelines, § 15073(e)]. If you have any questions or comments regarding this letter, please contact Felicia Silva, Environmental Scientist, at Felicia.Silva@wildlife.ca.gov or (562) 292-8105.

Sincerely,

DocuSigned by:
B6E58CFE24724F5...

Erinn Wilson-Olgin
Environmental Program Manager I
South Coast Region

ec: CDFW
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References:

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State of California – Natural Resources Agency
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

Attachment A: Draft Mitigation and Monitoring Reporting Plan

CDFW recommends the following language to be incorporated into a future environmental document for the Project. A final MMRP shall reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

Biological Resources (BIO)			
Mitigation Measure (MM) or Recommendation (REC)		**Timing**	**Responsible Party**
MM-BIO-1-LSA Notification	The Project Applicant shall be required to notify CDFW pursuant to Fish and Game Code 1602 and obtain an LSA Agreement from CDFW prior to obtaining a grading permit. The Project applicant shall comply with the mitigation measures detailed in a LSA Agreement issued by CDFW. The Project applicant shall also provide compensatory mitigation at no less than 2:1 for the impacted stream and associated natural community, or at a ratio acceptable to CDFW. Please visit CDFW's Lake and Streambed Alteration Program webpage for more information (CDFWa 2023).	Prior to Project construction and activities	LVMWD/Project Applicant
MM-BIO-2-Hydrology Report	CDFW recommends the LSA Notification include a hydrology report to evaluate whether altering upslope vegetation within the Project site may impact hydrologic activity downslope and downstream of the Project site. The hydrology report shall also include an analysis to determine if Project activities will impact the current hydrologic regime or change the velocity of flows entering the ephemeral streams and downstream. CDFW also requests a hydrological evaluation of any potential scour or erosion at the Project site and downstream due to a 100, 50, 25, 10, 5, and 2-year frequency storm event for existing and proposed conditions to determine how the Project activities may change the hydrology on site.	Prior to Project construction and activities	LVMWD/Project Applicant

MM-BIO-3-BMPs	Any Best Management Practice (BMPs) infrastructure that are installed shall be monitored and repaired, if necessary, to ensure maximum erosion, sediment, and pollution control. The Project proponent shall prohibit the use of erosion control materials potentially harmful to fish and wildlife species, such as mono-filament netting (erosion control matting) or similar material, within stream areas. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the Project site shall be free of nonnative plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.	Prior to Project construction and activities	LVMWD/Project Applicant
MM-BIO-4-Impacts to Species of Special Concern – Scientific Collecting Permit	Pursuant to the California Code of Regulations, title 14, section 650, the LVMWD/qualified biologist shall obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with Project construction and activities.	Prior to Project construction and activities	LVMWD/Project Applicant
MM-BIO-5-Species of Special Concern – survey	LVMWD shall retain a qualified biologist with experience surveying for the specific SSC. Prior to commencing any Project-related ground-disturbing activities, the qualified biologist shall conduct surveys for where suitable habitat is present. Focused surveys shall be conducted during a time of day/year when SSC are evident and identifiable. The surveys shall include mapping of current locations of special-status wildlife species for avoidance and relocation efforts and to assist construction monitoring efforts. The survey shall be conducted so that 100 percent coverage of the Project site and surrounding areas is achieved. If SSC are detected, the qualified biologist shall use visible flagging to mark the location where SSC was detected. The	Prior to Project construction and activities	LVMWD/Project Applicant

	qualified biologist shall take a special-status wildlife species found on site during surveys. If an Endangered Species Act-listed species is found prior to or during grading of the site, the USFWS shall also be notified. Additional avoidance and minimization measures may need to be developed with CDFW/USFWS, a photo of each location, map each location, and provide the specific species detected at that location. The qualified biologist shall provide a summary report of SSC surveys to the LVMWD before any Project-related ground-disturbing activities.		
MM-BIO-6- Impacts to Species of Special Concern – protection plan	Where applicable, wildlife shall be protected, allowed to move away on its own (non-invasive, passive relocation) to adjacent appropriate habitat within the open space on site or in suitable habitat adjacent to the Project area (either way, at least 200 feet from the grading limits). Special status wildlife shall be captured by only by a qualified biologist with proper handling permits . The qualified biologist shall prepare a species-specific list (or plan) of proper handling and passive relocation protocols. The list (or plan) of protocols shall be implemented during Project construction and activities/biological construction monitoring. The LVMWD/qualified biologist may consult with CDFW/USFWS to prepare species-specific protocols for proper handling and passive relocation procedures. Only a USFWS approved biologist shall be authorized to capture and relocate ESA-listed species. A passive relocation plan shall be submitted to CDFW for review and comment prior to implementing Project-related ground-disturbing activities.	Prior to/During Project construction and activities	LVMWD/Project Applicant
MM-BIO-7- Impacts to Species of Special Concern – worker training	LVMWD in consultation with a qualified biologist shall prepare worker environmental awareness training prior to implementation of Project ground-disturbing activities. The training shall include effective, specific, enforceable, and feasible actions. The qualified biologist shall have prepared maps showing locations where SSC were detected and share this information to workers as part of training. The qualified biologist shall meet with the construction crew at the Project site at the onset of construction to educate the construction crew on the following: 1) a review of the Project	Prior to/During Project construction and activities	LVMWD/Project Applicant

	boundaries; 2) all special-status species that may be present, their habitat, and proper identification; and 3) the specific mitigation measures that will be incorporated into the construction effort. The qualified biologist shall communicate to workers that upon encounter with a SSC, work must stop, a qualified biologist must be notified, and work may only resume once a qualified biologist has determined that it is safe to do so. Any contractor or employee that inadvertently kills or injures a special-status animal, or finds one either dead, injured, or entrapped, shall immediately report the incident to the qualified biologist and/or onsite representative identified in the worker training.		
MM-BIO-8- Impacts to Species of Special Concern – dead/injured wildlife	If any SSC are harmed during relocation or a dead or injured animal is found, work in the immediate area shall stop immediately, the qualified biologist shall be notified, and dead or injured wildlife documented immediately. The qualified biologist shall contact the USFWS, CDFW, and the LVMWD by telephone by the end of the day, or at the beginning of the next working day if the agency office is closed. In addition, a formal report shall be sent to the LVMWD, CDFW, and USFWS (as appropriate) within three calendar days of the incident or finding. The report shall include the date, time of the finding or incident (if known), and location of the carcass or injured animal and circumstances of its death or injury (if known). Work in the immediate area may only resume once the proper notifications have been made and additional mitigation measures have been identified to prevent additional injury or death.	During Project construction and activities	LVMWD/Project Applicant
MM-BIO-9- Mitigation Alteration	CDFW recommends modifying MM BIO-1 on page 29 of the MND to include underlined language and remove language with strikethrough. "Dewatering of the lakebed ~~following~~ and installation of the cofferdams shall be monitored by a qualified biologist with appropriate handling permits. The dewatering pump intake shall have a ~~0.5-inch (or smaller)~~ fine mesh screen (size determined by qualified biologist) to prevent entrainment of	During Project construction and activities	LVMWD/Project Applicant

	two-striped garter snake. In the event a two striped garter snake is encountered, a qualified biologist shall adhere to the species-specific list (or plan) of proper handling and passive relocation protocols. At a minimum, the qualified biologist shall use a seine (or appropriate hand-held nets) to capture any two striped garter snakes in the dewatered area and relocate them to suitable habitat along the lake shoreline at least 500 feet from the work area."		
MM-BIO-9-Nesting Season	To protect nesting birds that may occur on site or adjacent to the Project boundary, no construction shall occur from February 1 through September 15, as early as January 1 for some raptors.	Prior to Project construction and activities	LVMWD/Project Applicant
MM-BIO-10-Nesting survey	If avoidance during the nesting season is not feasible, a qualified biologist shall complete a survey for nesting bird activity within a 500-foot radius of the construction site. The nesting bird surveys shall be conducted at appropriate nesting times and concentrate on potential roosting or perch sites. The Lead Agency shall require surveys be conducted by a qualified biologist no more than 7 days prior to the beginning of any Project-related activity likely to impact raptors and migratory songbirds, for the entire Project site. If Project activities are delayed or suspended for more than 7 days during the breeding season, repeat the surveys. If nesting raptors and migratory songbirds are identified, the following minimum no-disturbance buffers may be implemented: 300 feet around active passerine (perching birds and songbirds) nests, 500 feet around active non-listed raptor nests and 0.5 mile around active listed bird nests. These buffers should be maintained until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.	Prior to Project construction and activities	LVMWD/Project Applicant

MM-BIO-11-Removal of Nesting Habitat	The temporary halt of Project activities within nesting buffers during nesting season does not constitute effective mitigation for the purposes of offsetting Project impacts associated with habitat loss. Additional mitigation will be necessary to compensate for the permanent removal of nesting habitat within the Project site based on acreage of impact and vegetation composition. CDFW shall be consulted to determine proper mitigation for impacts to occupied habitat depending on the status of the bird species. Mitigation ratios will increase with the occurrence a California Species of Special Concern and will further increase with the occurrence of a CESA-listed species.	Prior to Project construction and activities	LVMWD/Project Applicant
REC-1-LSA	CDFW's issuance of an LSA Agreement for a project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the CEQA document from the lead agency/project applicant for the project. To minimize additional requirements by CDFW pursuant to Fish and Game Code section 1600 et seq. and/or under CEQA, a project's CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement. To compensate for any on- and off-site impacts to aquatic and riparian resources, additional mitigation conditioned in any LSA Agreement may include the following: erosion and pollution control measures; avoidance of resources; protective measures for downstream resources; on- and/or off-site habitat creation; enhancement or restoration; and/or protection and management of mitigation lands in perpetuity.	Prior to Project construction and activities	LVMWD/Project Applicant
REC-2-Data	CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations [Pub. Resources Code, § 21003, subd. (e)]. The City shall ensure that all data concerning special status species within the Project site be submitted to the CNDDB	Prior to Project construction and activities	LVMWD/Project Applicant

	by completing and submitting CNDDB Field Survey Forms. This includes all documented occurrences of Catalina mariposa lily, and other SSC. The City shall ensure the data has been properly submitted, with all data fields applicable filled out, prior to Project ground-disturbing activities. The data entry shall also list pending development as a threat and then update this occurrence after impacts have occurred. The City shall provide CDFW with confirmation of data submittal.		

Commenter: Erinn Wilson-Olgin, California Department of Fish and Wildlife

Date: April 27, 2023

Response:

1. The proposed project does not include any development, just replacement of an existing sewer siphon at approximately the same location. The new siphon would be fully buried under the streambed and banks and would not result in any erosion or "earth movement". Dewatering of Medea Creek and adjacent portions of Malibou Lake would be conducted during the dry season when inflow into the Lake is negligible. Therefore, the potential for erosion associated with surface flow would be minimal. However, the project includes a surface flow bypass pipe connecting areas upstream and downstream of the dewatered area to maintain surface flow and avoid erosion. The streambed would be returned to pre-project conditions and contours using stockpiled streambed sediments following installation of the new siphon, which would prevent any increase in erosion during the following rainy season. Therefore, impacts to upstream and downstream biological resources associated with erosion and "earth movement" would not be significant. The District applied for a LSA for the project on April 25, 2023.
2. The project would involve removal of only 0.08 acres of vegetation, which would not result in increased scour or erosion. As discussed in the response to Comment 1, following the completion of construction, the project would not result in any changes to the streambed, streambanks or channel morphology. The streambed and banks would be restored to pre-project conditions following installation of the new siphon. Therefore, project-related changes in hydrology (including flow velocity, scour and erosion) are not anticipated.
3. Best management practices for control of stormwater during the construction period would be implemented as required by the State Board's General Permit. These would be in place during the rainy season as needed and removed. Mono-filament netting would not be used. As suggested, jute or coir fiber materials may be used.
4. The MND (topic of the comment letter) fully addressed impacts to biological resources in compliance with the State CEQA Guidelines. We anticipate CDFW will include additional requirements as part of the LSA.
5. Two-striped garter snake or other species of special concern were not observed at the project site during biological surveys conducted for the project. However, as a conservative measure, two-striped garter snake was assumed to be potentially present. Due to the mobility of this species, handling and relocation is not anticipated to be required. However, this species could be trapped between the upstream and downstream cofferdams. Therefore, the focus of mitigation measure MM BIO-1 is to capture and relocate this species if found during pumping of surface water from the dewatered area. Additional details regarding handling times and biologist's qualifications can be included in the LSA.

6. In our experience, CDFW does not allow capture or handling of species of special concern (including two-striped garter snake) for construction projects under scientific collecting permits. We anticipate handing two-striped garter snake (if required) under the authority of the LSA, following CDFW approval of the biologist's qualifications.
7. The project site was surveyed on February 2 and April 6, 2023 by a qualified biologist familiar with species of special concern occurring in the project region. None were found.
8. Due to the very small habitat area affected (0.08 acres), wildlife is not anticipated to be directly affected such as increased mortality. No listed species are anticipated to occur in the area. Wildlife present when project construction starts are expected "to move away on its own". Handling should not be required, except possibly for two-striped garter snake in the dewatered area (see mitigation measure MM BIO-1).
9. See the response to Comment 8. The District will conduct the suggested training if required by the LSA.
10. See the response to Comment 8, project-related injury or mortality to wildlife is not expected. The District will notify CDFW if such an event occurs during construction.
11. See the response to Comment 6. The details of the pump screen size and handling protocols can be developed as part of the LSA.
12. Measures to avoid take of breeding birds will be included in the LSA and implemented by the District.
13. Special-status species have not been observed to date at the project site. Should any be observed during construction, CNDDB field survey forms will be completed and submitted.
14. The suggested mitigation and monitoring plan is based on recommended measures which have not been adopted by the District. Therefore, the current mitigation and monitoring plan has not been revised.
15. The District will pay the appropriate CEQA review fees to the County Clerk when filing the Notice of Determination.
16. As required by Section 15073.e of the State CEQA Guidelines, the District will provide the date and time of the Board hearing to consider adoption of the Final IS/MND.

Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Los Angeles
Address: P.O. Box 1208
Norwalk, CA, 90650-1208

From:
Public Agency: Las Virgenes Municipal Water D
Address: 4232 Las Virgenes Road
Calabasas, CA, 91302
Contact: Alex Leu
Phone: 818-251-2144

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2020090033

Project Title: Malibou Lake Siphon Replacement

Project Applicant: Alex Leu

Project Location (include county): Intersection of Lake Vista Dr and Laguna Circle Dr, Agoura Hills, Los A

Project Description:

Replacement of the existing triple barrel siphon beneath the Medea Creek (at the confluence of Malibou Lake) with a new double barrel siphon. The new siphon will be just north of the existing siphon.

This is to advise that the Las Virgenes Municipal Water District (☒ Lead Agency or ☐ Responsible Agency) has approved the above

described project on 6/5/2023 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
4232 Las Virgenes Road, Calabasas, CA, 91302

Signature (Public Agency): _____ Title: Senior Engineer

Date: 6/5/2023 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

AGENDA ITEM NO. 6.D

DATE: June 5, 2023

TO: JPA Board of Directors

FROM: Engineering and External Affairs

SUBJECT: Tapia Water Reclamation Facility: Flood Protection Evaluation Update

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SUMMARY:

In 2020, as part of Los Angeles County Department of Public Works' (LACDPW) Malibu Canyon Bridge Replacement Project, a hydraulic analysis was developed to evaluate the upstream flooding conditions from the existing and proposed Malibu Canyon Bridge. From this analysis, LACDPW determined that the backwater effect from both the existing and proposed bridge would result in flooding at the Tapia Water Reclamation Facility (Tapia) during extreme precipitation events. Based on the new information and potential for flooding, in July of 2022, the District hired Stetson Engineers, Inc. (Stetson) to provide an independent analysis of flooding potential under different conditions.

Stetson's recent hydraulic analysis concluded that the flood wall at Tapia is generally adequate for the FEMA 100-year event but inadequate for the more severe LACDPW Capital Flood event, which is equivalent to a FEMA 500-year event. LACDPW's proposed Malibu Canyon Bridge would benefit flood levels for the FEMA 100-year peak flood but would have little effect for the Capital Flood. The hydraulic analysis also considered the potential future removal of Rindge Dam, which would not have a meaningful benefit in reducing floodwater levels at Tapia. In the interim, minor upgrades to better protect Tapia from the FEMA 100-year peak discharge can be completed, while the existing Malibu Canyon Bridge remains in place. As of May 2023, LACDPW's proposed Malibu Canyon Bridge design is still at a 60 percent completion level. It is anticipated that design efforts will be 90 percent completed in July 2023 and construction will be completed in 2030.

Staff reviewed the results from Stetson's flood protection analysis and determined that the results do not justify the significant investment needed for protection from the Capital Flood event. Tapia is a critical facility to support public health and safety with significant environmental risks associated with flooding of the facility. However, it is not typical or appropriate for facilities to be designed for flood scenarios that have the potential to occur one time within a 500-year period. It is not a standard of practice as the costs associated with designing or upgrading a facility under this infrequent occurrence would be significant. Staff will continue to monitor future FEMA flood mitigation assistance grants and additional funding opportunities, and will consider future improvements to mitigate potential flooding beyond the FEMA 100-year flood peak discharge if these funding opportunities are discovered.

RECOMMENDATION(S):

Receive and file the Tapia Water Reclamation Facility Flood Protection Evaluation Update.

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

There is no financial impact associated with this action. Sufficient funds for minor upgrades at Tapia for protection from the FEMA 100-year storm event are available in the adopted Fiscal Year 2023-24 JPA Budget.

DISCUSSION:

The JPA Board has expressed concerns regarding the level of flood protection at Tapia. These concerns are related to the effects of climate change resulting in the potential for high intensity rain events and more frequent occurrence of wildfires. Wildfire events could have an impact on Tapia because debris washed into the creek during flooding could cause an obstruction at the Malibu Canyon Road bridge.

In 2020, as part of LACDPW's Malibu Canyon Bridge Replacement Project, a hydraulic analysis was developed to evaluate the upstream flooding conditions from the existing 3-span Malibu Canyon Bridge and the proposed 2-span Malibu Canyon Bridge. From this analysis, LACDPW determined that the backwater effect from both the existing and proposed bridge would result in flooding at Tapia for both the FEMA 100-year flood peak discharge of 40,544 cfs (cubic feet per second) and the LACDPW Capital Flood (Capital Flood) peak discharge of 69,400 cfs.

Based on the new information and potential for flooding, in April 2022, the District issued a request for proposals for an updated and comprehensive analysis of the level of flood protection at Tapia. Stetson Engineers Inc. was awarded the contract for an extensive flood analysis of Tapia in July 2022. In 2023, Stetson completed a hydraulic analysis of Malibu Creek and the flooding effects to Tapia from the existing and proposed Malibu Canyon Bridge, along with the future removal of the Rindge Dam. The recent hydraulic analysis concluded that the flood wall at Tapia is generally adequate for the FEMA 100-year but inadequate for the Capital Flood. LACDPW's proposed Malibu Canyon Bridge would benefit flood levels for the FEMA 100-year peak flood but have little effect for the Capital Flood. The hydraulic analysis also considered the potential future removal of Rindge Dam, which would not have a meaningful benefit in reducing floodwater levels at Tapia. In the interim, minor upgrades to protect Tapia from the FEMA 100-year peak discharge can be completed, while the existing Malibu Canyon Bridge remains in place. As of May 2023, LACDPW's proposed Malibu Canyon Bridge design is still at a 60 percent completion level. It is anticipated that the design will be 90 percent complete in July 2023 and construction will be completed in 2030.

In 1965, LACDPW delineated the Malibu Creek watershed and defined the Capital Flood for Malibu Creek to be 41,800 cfs. The Capital Flood is defined as the runoff produced by a 50-year frequency design storm falling on a saturated watershed. This estimate included effects of future development in the watershed as well as the effects of burning and sediment bulking.

Subsequently, the District constructed a new flood wall along the northwest corner of Tapia based on the 1965 Capital Flood.

In 1990, a flood analysis of Tapia was completed by Rivertech. The flood analysis study included an independent analysis of the peak flow for Malibu Creek and validated the 1965 Capital Flood. As a result, the existing flood wall was extended toward the balancing pond. The new flood wall was also designed for the Capital Flood at 41,800 cfs for Malibu Creek. A peak flow (52,250 cfs) was also defined in the 1990 Rivertech Flood Analysis study as the combination of Malibu Creek (41,800 cfs) and Cold Creek (10,450 cfs) at the Los Angeles County F130-R Gauging Station (F130-R Gauging Station). The F130-R Gauging Station is located downstream of the confluence between Malibu Creek and Cold Creek.

The 1990 Rivertech Flood Analysis was validated by JPA staff in 2003 and again in 2015. The Tapia Flood Wall Study Update (2015 report) included an evaluation of the F130-R flow gauging station data, channel sediment, channel debris, channel vegetation conditions and impervious area percentage changes for the drainage basin from 2003 to 2015. The 2015 report, which was presented to the JPA Board on August 3, 2015, concluded that the existing flood protection facilities provided adequate protection for Tapia based on observations of significant flow events since 2003, compared to the original design peak flow for Malibu Creek (42,000 cfs) and a peak flow of Malibu Creek and Cold Creek (52,500 cfs).

In 2006, LACDPW issued an updated Hydrology Manual that required the Capital Flood to include the effects of fires and erosion under certain conditions. In 2007-08, the Malibu Creek Delineation was updated and the 50-year flow rate at Malibu Canyon Bridge was defined as 41,656 cfs. Using updated burned and bulking factors in the 2006 LACDPW Hydrology Manual, the Capital Flood was estimated to be 64,600 cfs at Malibu Canyon Bridge.

The modeled storm events are just theoretical events to understand the effects of flooding under these scenarios. Below is a summary of the theoretical flow conditions for Malibu Creek from Los Angeles County and FEMA.

Flow Conditions (For Malibu Creek Watershed):

Description	Peak Flow (cfs)	Note
1965 LACDPW Malibu Creek Capital Flood	41,800	
FEMA 100-Year Peak Flow	40,544	1% Annual Chance
2007/2008 LADPW Delineation Malibu Creek 50-Year Frequency Design Storm	41,656	
FEMA 50-Year Peak Flow	31,648	2% Annual Chance
FEMA 10-Year Peak Flow	14,183	10% Annual Chance
2007/2008 LACDPW Capital Flood	64,600	
FEMA 500-Year Peak Flow	63,934	0.2% Annual Chance

Based on historical information, many of the theoretical scenarios have not been observed or recorded due to the limited frequency of their potential occurrences. Below is a summary of

the historical peak flow conditions for Malibu Creek and Cold Creek at the F-130R Gauging Station.

Historical Data (From LACDPW F-130R Flow Gauge):

Description	Peak Flow (cfs)	Note
1965-1966	20,600	1965-1966 Rain Season
1968-1969	33,800	1968-1969 Rain Season
1980 (Maximum Recorded Flow)	52,250	Anecdotal From the 1990 Rivertech Report. No recorded data from LACDPW
1982-1983	24,200	1982-1983 Rain Season
1991-1992	23,300	1991-1992 Rain Season
1997-1998	19,100	1997-1998 Rain Season
2016-2017	16,900	2016-2017 Rain Season
2018-2019	7,940	2018-2019 Rain Season
2019-2020	2,300	2019-2020 Rain Season
2020-2021	526	2020-021 Rain Season
2022	1,131	
2023 (Up to 4/1/2023)	10,567	Data available up to 4/1/23

F-130R Gauge Data is the combination of Malibu Creek and Cold Creek

LACDPW 2020 Analysis:

LACDPW began planning to replace the Malibu Canyon Road Bridge over Malibu Creek that is located along Malibu Canyon Road between Piuma Road and Tapia's access road. As a part of the design process, LACDPW's Stormwater Engineering Division, Hydraulics and Hydrology Section developed a preliminary hydraulic analysis for Malibu Creek in the vicinity of the bridge, which includes Tapia as it is immediately upstream. The analysis included preliminary water surface elevations at various creek stations adjacent to Tapia under two scenarios: (1) a FEMA 100-year flood event; and (2) a Capital Flood event. The properties for the FEMA 100-year flood event (1% annual chance) reflected a peak discharge of 40,544 cfs. The LACDPW Capital Flood assumes a 50-year flood event occurring over a burned and saturated watershed with the discharge volume bulked to account for sediment and debris transport. As a result of the bulking, the Capital Flood produces a discharge volume of 69,400 CFS (equivalent to a FEMA 500-year storm at 0.2% annual chance) and results in a significantly higher water surface elevation than the FEMA 100-year event.

LACDPW's analysis of the FEMA 100-year flood event resulted in preliminary water surface elevation for Malibu Creek at various stations adjacent to Tapia. The water surface elevations range from 478.15 feet at the northwest end of Tapia, reducing to 475.88 feet at the southeast end of Tapia. Tapia's flood wall elevation at the northwest (headworks) end of the facility is 477.66 feet and reduces to 472.5 feet at the southeast end. The floodwall elevation adjacent to the balancing pond is 473.5 feet. It is important to note that many of the structures within Tapia have a higher elevation than the floodwall such as the filters (487 feet) and secondary clarifiers (491 feet), so they would be protected. However, the water surface elevations

established by LACDPW's Hydraulic Analysis Report exceed the floodwall height, as well as the balancing pond wall height at the southeastern portion of the facility. The FEMA 100-year flood event could inundate the balancing pond, effluent pond and chlorine contact channel, causing a severe disruption to the treatment process.

LACDPW's analysis of the Capital Flood event determined the preliminary water surface elevations for Malibu Creek all exceed the height of the floodwall at Tapia. In addition to the southeastern portion of the Tapia being flooded, the influent sewer vault (el. 474 feet) and headworks (el. 476 feet) would be inundated. Additionally, the Southern California Edison sub-station (el. 467 feet) and emergency generators (el. 476.3 feet) would be flooded, cutting off all the power to the facility. A flooding event of this size would result in a catastrophic failure.

Stetson 2023 Analysis:

Stetson's hydraulic analysis concluded that for the FEMA 100-year event under the existing 3-span Malibu Canyon Bridge condition, there would be minor inundation at the downstream end of Tapia after the termination of the existing floodwall and through low openings along the Balancing Pond wall. There is also a storm drain culvert and a flap gate at Discharge Point No. 001 that is stuck open, which is an area where elevated water levels in Malibu Creek could backflow into Tapia. Due to the lower elevations along the access road, the FEMA 100-year event would also result in a maximum 3.5-feet of flooding along portions of the access road. The Capital Flood would result in more than 50 percent of Tapia being inundated under up to 6-feet of water. The access road into Tapia would also be inundated under upwards of 9-feet under the Capital Flood.

Stetson's hydraulic analysis indicated that the proposed 2-span Malibu Canyon Bridge would reduce flood water levels for the FEMA 100-year event but have minimal effect under the Capital Flood. It was determined that the current flood protection at Tapia is adequate for the FEMA 100-year flood. Portions of the access road would still be subject to a maximum 2.3-feet of flooding, but the treatment processes themselves and access in and around treatment process would remain intact. The Capital Flood would still result in more than 50 percent of Tapia being inundated under upwards of 9-feet of flood water. The access road into Tapia would also be inundated under upwards of 9-feet under the Capital Flood.

Condition	Flood Event	Tapia Flooding?	Access Road Flooding?
Existing Bridge	FEMA 100-year	Yes	Yes
	Capital Flood	Yes	Yes
Proposed Bridge	FEMA 100-year	No	Yes
	Capital Flood	Yes	Yes

The hydraulic analysis also considered the potential future removal of Rindge Dam, which would not have a meaningful benefit in reducing floodwater levels at Tapia.

Since there is only a 0.2 percent chance of there being a Capital Flood event in any given year, staff is not recommending making a multi-million-dollar investment to construct new floodwall and increase the existing floodwall. It is not a standard of practice as the costs associated with designing or upgrading a facility under this infrequent occurrence would be significant. Staff will continue to monitor future FEMA flood mitigation assistance grants and

additional funding opportunities and will consider future improvements to mitigate potential flooding beyond the FEMA 100-year flood peak discharge if these funding opportunities are discovered.

GOALS:

Construct, Manage and Maintain all Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Alex Leu, Senior Engineer

ATTACHMENTS:
Report for Tapia WRF Flood Protection Evaluation Update
Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F
Appendix G
Appendix H

TAPIA WATER RECLAMATION FACILITY
FLOOD PROTECTION EVALUATION UPDATE

Prepared by

Stetson Engineers Inc.
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Executive Summary

The purpose of this project is to perform a hydraulic analysis to evaluate if the existing flood protection at the Tapia Water Reclamation Facility (WRF) is adequate under both the FEMA 100-year flood and the Los Angeles County's Capital Flood conditions and, if not, recommend additional protection measures. The evaluation considered the existing channel condition, the proposed Malibu Canyon Road Bridge replacement condition designed by the Los Angeles County Department of Public Works (LACDPW)[1], and the hypothetical condition of removal of the abandoned Rindge Dam for reducing the dam's backwater effect.

The following work was performed to conduct the flood protection evaluation:

- Reviewed relevant flood studies, identified additional data needs, and collected the additional data, in particular the additional data collected from the LACDPW.
- Visited the site to inspect the hydraulic conditions of the creeks and surveyed the Malibu Canyon Road Bridge, the Tapia WRF floodwall, and the pressure transducer sensor elevation of streamflow gage F130-R.
- Evaluated the adequacy of the Los Angeles County's 2015/2016 LiDAR topographic data to represent the current channel topography, given the significant wildfires from 2017 to 2018.
- Prepared a longitudinal profile of the channel bed to evaluate the sedimentation condition behind the abandoned Rindge Dam and prepared the expected channel bed profile after the hypothetical removal of the dam.
- Verified the LACDPW-estimated Capital Flood of about 64,600 cubic feet per second (cfs) at the Malibu Canyon Road Bridge using the method documented in the LACDPW 2006 Sedimentation Manual.
- Developed a HEC-RAS two-dimensional unsteady-flow hydraulic model and calibrated/ verified the model for four selected high flow events.
- Performed model simulations to evaluate the adequacy of the Tapia WRF floodwall under both the FEMA 100-year flood and the Los Angeles County's Capital Flood conditions.
- Recommended conceptual improvements and performed a model simulation to verify the effectiveness of the recommended improvements in flood protection.
- Prepared conceptual cost estimates for the recommended improvements.

Below are the major findings from this study:

- Comparison of the LACDPW's 2019 field survey data in the vicinity of the Malibu Canyon Road Bridge and the Los Angeles County's 2015/2016 LiDAR topographic data indicates that the 2015/2016 LiDAR data is still adequate to represent the current channel topography for this flood study, even after the significant wildfires from 2017 to 2018.

[1] As of January 2023, the proposed Malibu Canyon Road Bridge design by LACDPW is at 60% Design.

- Evaluation of the channel bed profile based on the 2015/2016 LiDAR data indicates that the channel behind the abandoned Rindge Dam is fully filled with sediment. The channel bed behind the dam would be geomorphologically expected to become the natural grade condition after removal of the grade control of the dam. Since the distance between the dam and the Tapia WRF is relatively long (about 2 miles) and the channel slope upstream of the dam to the streamflow gage F130-R is relatively steep (about 3%), the backwater effect of the dam would not be expected to reach the Tapia WRF. This was confirmed by the hydraulic modeling analysis. In other words, removal of the abandoned Rindge Dam would not provide any benefit in reducing the flood water level at the Tapia WRF.
- Compared to the existing Malibu Canyon Road Bridge condition, hydraulic modeling analysis indicates that the proposed Malibu Canyon Road replacement bridge by LACDPW (at 60% design as of January 2023) would reduce the flood water level by about 1.5 feet (ft) at the upstream face of the bridge and by about 0.2 ft at the upstream end of the Tapia WRF under the FEMA 100-year flood condition, but would have little effect on the flood water level under the Capital Flood condition.
- Under the existing Malibu Canyon Road Bridge condition, hydraulic modeling analysis indicates that the existing flood protection at the Tapia WRF is generally adequate for the FEMA 100-year flood with minor overflow mainly through the small opening of the Balancing Basin wall. With the proposed replacement bridge in place, the existing flood protection at the Tapia WRF is adequate for the FEMA 100-year flood. However, the access road would be flooded under both existing and proposed bridge conditions during the FEMA 100-year flood. Compared to the existing bridge condition, the proposed bridge would reduce the extent of flooding on the access road and lower the inundation depth by about 1.2 ft, from a maximum depth of about 3.5 ft to about 2.3 ft.
- The existing flood protection at the Tapia WRF is inadequate under the Los Angeles County's Capital Flood condition. This finding is reasonable since the existing flood protection at the Tapia WRF was designed based on a peak flow of 41,800 cfs at the Tapia WRF that was used in the Rivertech 1990 study, and this peak flow is higher than the FEMA 100-year flood (40,544 cfs at the mouth of Malibu Creek) but significantly lower than the Capital Flood (64,600 cfs at the Tapia WRF). During the Capital Flood, more than 50% of the Tapia WRF site would be inundated with an inundation depth up to about 9.4 ft, and the entire access road would be flooded with an inundation depth up to about 9.5 ft.
- Raising the existing floodwall to appropriate elevations and extending the existing floodwall downstream to the Malibu Canyon Road Bridge along the right bank of the channel (looking downstream) would be effective to protect the Tapia WRF and the access road from the Capital Flood. Based on the simulated Capital Flood water surface elevation (WSE) profile shown in Figure 25 (red dashed line), the existing floodwall would need to be raised by up to 5.6 ft and the new floodwall along the access road would need to be up to 10.2 ft in height for the Capital Flood protection. In addition to the floodwall improvements, the stormwater drainage culvert near the Tapia WRF entrance gate would need to install a gate to prevent backup flooding from Malibu Creek during the Capital Flood, and the existing stuck open flap gate of the Outfall 001 that discharges to Malibu Creek would need to be replaced.

1.0 Introduction

The purpose of this project is to perform a hydraulic analysis to evaluate if the existing flood protection at the Tapia Water Reclamation Facility (WRF) is adequate under both the FEMA 100-year flood and the Los Angeles County's Capital Flood conditions and, if not, recommend additional protection measures. The Tapia WRF is operated under a Joint Powers Authority agreement between the Las Virgenes Municipal Water District (LVMWD) (located in western Los Angeles County) and the Triunfo Water & Sanitation District (located in eastern Ventura County).

The Tapia WRF, constructed in 1964, is operated under a NPDES permit issued by the Los Angeles Regional Water Quality Control Board, which requires that "All facilities used for collection, transport, treatment, or disposal of wastes shall be adequately protected against damage resulting from overflow, washout, or inundation from a storm or flood having a recurrence interval of once in 100 years".

Since 1986, Los Angeles County has adopted the Capital Flood protection policy for all facilities (including open channels, closed conduits, bridges, and dams and debris basins) that are constructed to transport or intercept sediment laden floodwaters from natural watercourses[2]. The LACDPW-proposed Malibu Canyon Road Bridge replacement[3], which is located immediately downstream of the Tapia WRF (see Figure 1), is required to provide Capital Flood protection since Malibu Creek is a sediment laden natural watercourse in a mountain area and is generally in a natural state subject to wildfires. The existing flood protection at the Tapia WRF, which was constructed in 1990, aimed to provide Capital Flood protection based on the Rivertech 1990 flood study[4] under the existing Malibu Canyon Road Bridge condition. The level of the existing flood protection at the Tapia WRF is highly related to the hydraulic conveyance capacity of the Malibu Canyon Road Bridge.

The Capital Flood is the runoff produced by a 50-year frequency design storm falling on a saturated watershed. A 50-year frequency design storm has a probability of 1/50 of being equaled or exceeded in any year (i.e., a recurrence interval of once in 50 years). Capital Flood protection requires adding the effects of wildfires and erosion (burning and sediment/debris bulking) under certain conditions. Burned watersheds would suffer from a decreased infiltration rate after a wildfire and, thus, increased surface runoff [5]. Bulking is the increase in flow rate due

[2] The Capital Flood protection policy was established in the LACDPW memorandum dated March 31, 1986, General Files No. 2-15.321/ Level of Flood Protection (see Appendix H). This policy describes degrees of flooding and which design storms should be used for certain conditions and structures. Chapter 4 of the LACDPW 2006 Hydrology Manual also has some information about the Capital Flood protection.

[3] The existing Malibu Canyon Road Bridge was constructed in 1952.

[4] However, the estimated Capital Flood peak discharge at the Tapia WRF by the Rivertech 1990 flood study (about 41,800 cfs) is significantly lower than the LACDPW-estimated peak discharge (about 64,600 cfs) in its 2022 hydraulic study for the Malibu Canyon Road Bridge replacement project. This would potentially cause the inadequacy of the existing flood protection at the Tapia WRF for the Capital Flood protection.

[5] The decrease in infiltration after a wildfire results from calcification caused by intense heat, plugging of the soil pores by ash or other fines, and other chemical reactions that produce a hydrophobic condition. A lack of surface cover also promotes the formation of a crust of fine soil due to the impact of raindrops. This crust further impedes infiltration.

to inclusion of sediment/debris in the flow. This condition applies primarily to mountain areas subject to wildfires that destroy the vegetative cover protecting the soil. It also applies to watersheds in mountain areas with loose surface material that is likely to produce sediment.

The Tapia WRF is located in Los Angeles County on the south bank of Malibu Creek, just upstream of the Malibu Canyon Road Bridge (see Figure 1) and is located at the lower portion of the Malibu Creek watershed (see Figure 2). The Malibu Creek watershed covers approximately 110 square miles (sq.mi) and the drainage area at the Malibu Canyon Road Bridge is about 97 sq.mi. The tributary Cold Creek, located approximately 1,200 ft downstream of the Malibu Canyon Road Bridge, has a drainage area of about 8 sq.mi. The Los Angeles County Department of Public Works (LACDPW) is proposing to replace the existing Malibu Canyon Road Bridge.

The Malibu Creek watershed is located at the northwestern end of Los Angeles County and the southern end of Ventura County. Roughly 80% of the Malibu Creek watershed is open space with very few settlements and residences situated within its border. Much of this open space is under the jurisdiction of the National and State Parks. The topography of the watershed includes steep ravines and densely vegetated hillsides. The watercourses in the watershed are primarily natural streams, with little flow during the summer months. Flow from the watershed directly discharges into the Pacific Ocean.

Below is a summary of relevant flood studies:

- In 1965, a floodplain delineation study was performed by the Los Angeles County Flood Control District. This study indicated that the Tapia WRF was outside of the 100-year floodplain except for some storage buildings on the northwest corner of the plant. Subsequent to the floodplain delineation study, a floodwall was constructed on this part of the site so that the entire facility would be outside of the floodplain. A design peak discharge of 41,800 cfs at the Tapia WRF was used in the 1965 floodplain delineation.
- In 1990, Rivertech Inc. performed a floodplain evaluation (see Appendix F) to determine the level of flood protection necessary for the Tapia WRF. Based on the Rivertech's HEC-2[6] hydraulic modeling results of the ultimate development condition (with an estimated peak discharge of about 41,800 cfs at the Tapia WRF and an estimated peak discharge of about 52,250 cfs at gaging station F130-R), the floodwall at the Tapia WRF was constructed to a height of 478.00 ft NGVD29 (or 480.54 ft NAVD88)[7] at the west end of the plant stepping down to an elevation of 472.50 ft NGVD29 (or 475.04 ft NAVD88) at the east end of the plant.
- In 2003, the LVMWD performed an update of the Rivertech 1990 study and validated the Rivertech recommended elevations by comparison of the high water elevations observed at the Tapia WRF during the February 10, 1992 and the February 7, 1998 storm events (with observed peak discharges at gaging station F130-R at 23,300 cfs and 19,100 cfs, respectively). No hydraulic modeling analysis was conducted in the 2003 update.

[6] HEC-2 is the predecessor of the current HEC-RAS hydraulic modeling program developed by the U.S. Army Corps of Engineers.

[7] At the project area, NAVD88 = NGVD29 + 2.543 ft.

- In 2015, the LVMWD prepared a further update of observations of major storm events since the 2003 update using the gaging station peak discharge data, channel sediment, channel debris, channel vegetation conditions, and percentage changes in impervious area in the drainage basins. The 2015 update concluded that the existing flood protection facilities at the Tapia WRF would provide adequate flood protection by comparison of the high water elevations observed at the Tapia WRF during the January 9, 2005 and the March 20, 2011 storm events (with observed peak discharges at gaging station F130-R at 12,700 cfs and 6,490 cfs, respectively). No hydraulic modeling analysis was conducted in the 2015 update.
- In 2022, the Stormwater Engineering Division, Hydrology & Hydraulics Section of the LACDPW performed a hydraulic modeling analysis using HEC-RAS (version 5.0.7) for the proposed replacement of the Malibu Canyon Road Bridge (see Appendix G). The modeling results indicated that floodwater elevations under the FEMA 100-year discharge condition (40,544 cfs at the mouth of Malibu Creek) were above the Tapia WRF's flood protection wall in several locations on the eastern side of the facility, which would cause failures in the effluent section of the plant. In a Capital Flood event (64,600 cfs at the Malibu Canyon Road Bridge), the modeling analysis indicated that the entire flood protection wall would be overtopped causing a catastrophic failure of the facility.

It should be noted that the 2003 and 2015 updates based on the observed historical high-water levels should not be seen as a basis for verifying the adequacy of the Tapia WRF flood protection since the historical actual high flow events had much lower peak discharges than the design discharge for the Capital Flood (64,600 cfs). However, the observed high-water levels would be useful information for calibration and verification of a hydraulic model.

Both the Rivertech 1990 study and the LACDPW 2022 study used a one-dimensional (1D) steady-flow hydraulic modeling approach, but the findings on the Tapia WRF flood protection level were significantly different. The Tapia WRF floodwall was constructed based on the Rivertech 1990 study which used a peak discharge of about 41,800 cfs at the Tapia WRF. The LACDPW 2022 study showed that the floodwall would not be adequate under the FEMA 100-year flood condition which has a peak discharge of 40,544 cfs at the mouth of Malibu Creek. Given the contradictory findings, the LVMWD retained Stetson Engineers Inc. to conduct this independent hydraulic evaluation. A HEC-RAS 2D unsteady-flow hydraulic model was developed for this hydraulic evaluation and described in detail in Section 3.0.

2.0 Hydrologic Analysis

This hydrology analysis is intended to provide the estimated peak flow input data required for the developed HEC-RAS two-dimensional (2D) hydraulic model discussed in Section 3.0 that was used in the flood protection evaluation. The HEC-RAS model domain encompasses the Malibu Creek main channel and the tributary Cold Creek and floodplains from about 2,800 ft upstream of the Tapia WRF to the Pacific Ocean. Accordingly, the flow inputs for the main channel and the tributary Cold Creek at the upstream end of the model domain were developed as upstream boundary conditions for the model (see Figure 3 for the HEC-RAS model domain and required flow input locations indicated by arrows). The downstream boundary of the HEC-RAS model is tide level.

Two flood events were analyzed for the flood protection evaluation. One is the FEMA 100-year flood, and the other is the Los Angeles County's Capital Flood.

The FEMA 100-year peak discharge for Malibu Creek was obtained from the FEMA effective Flood Insurance Study (FIS). The FIS discharge table (see Appendix A) shows that the FEMA-derived 100-year peak discharge at the "Cross Section A" of Malibu Creek is 40,544 cfs with a drainage area of 110 sq.mi. Cross Section A is shown in FEMA's Flood Insurance Rate Map (Panel 06037C1541G) and the FIS water surface profile for Malibu Creek (see also Appendix A). This location is about 1,540 ft above the Pacific Coast Highway or about 4.5 miles downstream of the gaging station F130-R. For this study, it was assumed that the FEMA 100-year peak discharge at the gaging station F130-R is the same as the FEMA Cross Section A. This assumption would be a little conservative (overestimation) since the peak discharge at the gaging station F130-R would be a little lower than that at the FEMA Cross Section A which is located about 4.5 miles downstream of the gaging station.

The Capital Flood peak discharge for Malibu Creek was derived by the following two major steps:

1) Obtained the 2007 simulated "burned flow rates" for the Malibu Creek watershed from LACDPW. A detailed hydrology study was completed by LACDPW in 2007 for Malibu Creek and was based on the Modified Rational Method available within the Watershed Modeling System. The Malibu Creek watershed is in a mountain area and is mostly undeveloped and subject to burning from wildfires. As a result, the LACDPW's 2007 hydrology study accounted for the effects of a burned watershed ("burned flow rates")[8]. Refer to Appendix B for the subarea delineation and the model outputs for the subareas upstream of the confluence with Cold Creek in the LACDPW's 2007 hydrological modeling. The burned flow rate at the Malibu Canyon Road Bridge (subarea 245A) was simulated to be about 41,656 cfs.

[8] The burned factor applies to undeveloped watersheds with the potential for wildfires. These watersheds would suffer from a decreased infiltration rate after a wildfire and, thus, increased surface runoff. The decrease in infiltration after a wildfire results from calcification caused by intense heat, plugging of the soil pores by ash or other fines, and other chemical reactions that produce a hydrophobic condition. A lack of surface cover also promotes the formation of a crust of fine soil due to the impact of raindrops. This crust further impedes infiltration. The LACDPW's 2007 hydrologic modeling for the Malibu Creek watershed considered this effect by using higher runoff coefficients.

2) The burned flow rate was then bulked to reflect increases in runoff volume and peak flow related to the inclusion of sediment and debris using the method documented in the LACDPW's 2006 Sedimentation Manual (2nd edition)[9]. The Malibu Creek watershed is mostly within Debris Producing Area 4 (DPA) with a small portion within DPA 6 (see Figure 4). DPA 4 and 6 have a bulking factor of 1.55 and 1.51 respectively (see Figure 5 for the bulking factor curves) for the watershed size of about 97 sq.mi at the Malibu Canyon Road Bridge. To be conservative, a bulking factor of 1.55 was selected and the burned & bulked flow rate (i.e., Capital Flood) was estimated to be about 64,600 cfs at the Malibu Canyon Road Bridge (41,656 × 1.55 = 64,600 cfs). This estimate verified the Capital Flood peak discharge used in the LACDPW's 2022 hydraulic modeling analysis for the proposed replacement of the Malibu Canyon Road Bridge.

With regard to the flows of the tributary Cold Creek (about 8 sq.mi in drainage area), the FEMA FIS-published 100-year peak discharge is 6,406 cfs at the downstream end of the tributary (see the discharge table in Appendix A). This is about 15.8% of the 100-year peak discharge at gaging station F130-R (40,544 cfs) which has a drainage area of about 105 sq.mi. According to email communication with LACDPW staff on August 24, 2022, the LACDPW 2007 hydrologic modeling showed that the simulated burned flow rate was about 7,950 cfs for Cold Creek and was about 42,960 cfs at gaging station F130-R. This means that the simulated burned flow rate for Cold Creek was about 18.5% of the burned flow rate at gaging station F130-R, but Cold Creek only contributed about 1,304 cfs (42,960 – 41,656 = 1,304 cfs) or about 3% to the burned flow rate at gaging station F130-R (1,304 ÷ 42,960 = 3%). The flows did not add peak to peak because of the simulated difference in timing of the peak flows between the tributary and the mainstem. As a result of the simulated small contribution of Cold Creek to the mainstem peak flow, the LACDPW 2022 hydraulic modeling did not include any of the Cold Creek flow contribution. For this flood protection evaluation update, since different flow events will be analyzed including the selected four flow events for model calibration/verification (see Section 3.2), the Cold Creek peak flow contribution was included, and its contribution to the mainstem peak flow was uniformly assumed to be the drainage area ratio of about 7.6% (8 ÷ 105 = 7.6%) for all flow events. Using the drainage area ratio to estimate flows is a widely used method in hydrologic engineering practices. Given the FEMA 100-year peak discharge of 40,544 cfs at gaging station F130-R, the estimated 100-year peak discharges of Cold Creek and Malibu Creek upstream of the confluence with Cold Creek would be about 3,081 cfs (40,544 × 7.6%) and 37,463 cfs (40,544 – 3,081), respectively. Similarly, given the estimated Capital Flood peak discharge of about 64,600 cfs at the Malibu Canyon Road Bridge, Cold Creek would have an estimated contribution of about 5,328 cfs (64,600 × 8 ÷ 97) and the total Capital Flood peak discharge of Malibu Creek downstream of the confluence with Cold Creek would be about 69,928 cfs (64,600 + 5,328).

[9] The 1st edition of the LACDPW's Sedimentation Manual was published in 1993. The existing flood protection at the Tapia WRF, which was constructed in 1990, aimed to provide Capital Flood protection based on the Rivertech 1990 flood study. However, the estimated Capital Flood peak discharge at the Tapia WRF by the Rivertech 1990 flood study (about 41,800 cfs) is significantly lower than the LACDPW-estimated peak discharge (about 64,600 cfs) in its 2022 hydraulic study for the Malibu Canyon Road Bridge replacement project. The LACDPW 2022 study derived the Capital Flood peak discharge based on the bulking factor documented in the 2006 Sedimentation Manual. Without the bulking factors published at the time, the Rivertech 1990 study estimated the Capital Flood based on its own methodology.

3.0 Hydraulic Analysis

The current widely used hydraulic modeling program HEC-RAS (version 5.0 or higher) developed by the U.S. Army Corps of Engineers has capabilities for 1D (one-dimensional) modeling, 2D modeling, and combined 1D and 2D modeling. In a 1D hydraulic model, the calculations are made at a series of cross sections across the channel and floodplain. Cross sections are typically spaced every few hundred feet. In a 2D model, the calculations are made at grid cells throughout the channel and floodplain. A 1D model is good at estimating the flow at which a channel (relatively narrow channels in particular) will overtop and cause flooding, but less so at predicting where water will go once it escapes into the floodplain. For that reason, a 2D model is used for the floodplain area to better predict where flow will go once it escapes from the channel. In a combined 1D channel and 2D floodplain model, the calculations are designed to take advantage of the respective strengths of the 1D and 2D models.

Both the Rivertech 1990 study and the LACDPW 2022 study used 1D steady-flow hydraulic modeling approach. For this independent hydraulic evaluation, a HEC-RAS 2D unsteady-flow model was developed[10]. Compared to 1D, 2D modeling would more realistically represent the physical flow conditions in relatively wide channels during large flood events (such as the Malibu Creek) and in the floodplains, since the flows are naturally two-dimensional driven by hydraulics and topography.

3.1 Model Construction

A HEC-RAS model requires a model domain that defines the geographic area to be modeled, the underlying topography (terrain) that affects the flood flow paths in the channels and floodplain areas, and details on hydraulic structures that affect the local flow hydraulics and often play a critical role in the determination of the channel capacity and bank overtopping. This section describes the limits of the model domain, the sources of the terrain data and the hydraulic structure data used in the model, the configuration of the model, the hydraulic roughness (i.e., Manning's *n*) of the floodplain/ channel bed/ hydraulic structures, and the model boundaries (i.e., flow inputs and input locations).

3.1.1 Model Domain

A model domain needs to cover all the study areas of interest, plus the adequate upstream and downstream buffers to eliminate any unwanted potential effect of user-specified model boundary conditions, and the adequate lateral buffers at both sides of a stream flood corridor to eliminate any unwanted potential formulation of glass walls.

[10] With regard to flow variability with time, hydraulic models can be either steady-flow or unsteady-flow (or dynamic) models. Steady-flow models run at a constant flow (e.g., the peak of the 100-year flow) and solve the mathematical equations over space only, without considering flow variations over time. Unsteady-flow models run the entire hydrograph with its rising, peak, and falling stages and solve the mathematical equations with consideration of flow variations over both space and time. Steady-flow models are generally more conservative (predict higher peak water level and more inundation) than unsteady-flow models in that they predict larger areas of flooding because they assume that all parts of the creek and floodplain are receiving the peak flow simultaneously and continuously over an infinite amount of time, and flood attenuation is not considered.

The model domain for this hydraulic evaluation is shown in Figure 3. The model domain starts at the Pacific Ocean and extends upstream to about 2,800 ft upstream of the Tapia WRF. The model domain laterally extends wide enough into both sides of the floodplain to ensure that the lateral extent covers all potential inundation areas under the Capital Flood. The Malibu Canyon Road Bridge, the Tapia WRF floodwall, and the Rindge Dam were carefully represented in the model. The selected downstream boundary location at the Pacific Ocean is intended to better define the downstream boundary water levels such as the mean higher high water (MHHW). This downstream location will not have any effect on the computed water surface elevations at the Tapia WRF.

3.1.2 Terrain or Topography Data

The high-resolution digital elevation model (DEM; 3 ft) developed from Light Detection and Ranging (LIDAR) data was used as the primary terrain data for the model. The 3 ft DEM data were obtained from the LACDPW and were the highest-resolution terrain data available for the study area. The LiDAR data was collected in 2015 and 2016 by the Los Angeles Regional Imagery Acquisition Consortium (LAR-IAC). The vertical datum of the LiDAR data is NAVD88.

An examination of the LiDAR DEM indicates that the DEM data depict very detailed ground features, not only for the wide open areas such as the floodplain and the Malibu Creek main channel, but also for the relatively small tributary channels such as the channel bed of Cold Creek. The background in Figure 3 shows the 3 ft DEM.

Given the significant wildfires from 2017 to 2018, an evaluation was conducted to assess whether the 2015/16 LiDAR data is still adequate to represent the current channel topography for this flood protection evaluation. Figure 6 compares the LACDPW's 2019 field survey data for the natural ground points in the vicinity of the Malibu Canyon Road Bridge and the 2015/2016 LiDAR topographic data. The comparison shows that most of the field survey data points have an elevation difference within ± 1 ft from the LiDAR data, indicating that the 2015/16 LiDAR data is still adequate to represent the current channel topography for this flood protection evaluation.

Figure 7 shows the channel bed profile for the model domain based on the 2015/16 LiDAR data. The channel bed profile was prepared along the alignment shown in Figure 8 which is generally along the channel thalweg[11] except for the Tapia WRF reach. The Tapia WRF reach used an alignment near the floodwall to more accurately read the simulated flood water levels along the floodwall from the HEC-RAS 2D model since the simulated water levels may have lateral variations. That is why the channel bed profile in Figure 7 shows a little bump at the Tapia WRF reach.

The channel bed profile in Figure 7 indicates that the channel behind the abandoned Rindge Dam is fully filled with sediment. The dam is a grade control. The channel bed behind the dam would

[11] The term "channel thalweg" means the lowest points along the entire length of a stream bed, defining the deepest channel.

be geomorphologically expected to become the natural grade condition after removal of the grade control of the dam (see the red dashed line in Figure 7).

3.1.3 Supplemental Field Survey of Hydraulic Structures

To supplement the LiDAR data and provide greater detail in specific areas, a field survey was performed by Stetson on September 14, 2022 using a Total Station, a modern surveying instrument that measures angles, distances, and elevations electronically and processes trigonometrically to provide elevations and position coordinates in space. The field survey was tied to the benchmark on the north end of the Malibu Canyon Road Bridge. The field survey data points and results are shown in Appendix C, which included surveys of the Malibu Canyon Road Bridge, the Tapia WRF floodwall, the pressure transducer sensor of the F130-R gage, and other locations. It is worth noting that the field survey identified the exact location of the F130-R gage and the sensor elevation (436.24 ft NAVD88) which will be used to convert the recorded water depth at the gage to elevation.

3.1.4 Model Grid

2D Grid Cell Size. The primary size for the 2D grid cells is 30 ft by 30 ft, which was judged small enough to capture details of the channel and floodplain topography[12]. Additional effort was made to enhance the topography representation at key locations (e.g., top of bank areas, floodwalls, berms, roads) using break lines (see additional description of break lines below) and fine mesh size (see the insert in Figure 3). The topographic resolution is sufficient to capture the topography of streets and most flow barriers such as berms/floodwalls or other high ground features.

Break Lines[13]. Break lines were included in the 2D computational mesh in order to align the cell edges with high ground. Aligning the cell edges with high ground ensures that barriers to flow, such as floodwalls, berms, or roads, are correctly represented in the computational mesh. Without break lines, flow may cross a high ground barrier prematurely.

3.1.5 Model Representation of the Malibu Canyon Road Bridge

The Malibu Canyon Road Bridge is located immediately downstream of the Tapia WRF. The LACDPW is proposing to replace the existing bridge. As of January 2023, the LACDPW's bridge design is at 60%. Accurate representation of the bridge structure in the model is important to simulate its backwater effect.

Figures 9a and 9b show the side view of the existing and the proposed replacement bridges, respectively. The existing 3-span bridge is 212 ft long and has 2 piers with a pier thickness of 2.5

[12] The current HEC-RAS 2D program is able to adequately represent the small channel geometry even if the grid size is at the similar level of the small channel width.

[13] Break lines are used to define features such as berms, roads, channel top of bank areas, and other high ground features. Break lines force surface triangulation along the break line preventing triangulation across the break line when developing the topographic Digital Elevation Model.

ft. The abutments and wing walls of the existing bridge were constructed with reinforced concrete (see the photo below). Appendix D shows the as-built drawings of the existing bridge (vertical datum: NGVD29) and the LACDPW's 60% designs of the proposed replacement bridge (vertical datum: NAVD88). The proposed bridge will be longer and consist of a 2-span design with a single pier support (3 ft thick). Table 1 below summarizes pertinent data for the existing and proposed bridges. Figure 10 shows the bridge presentation in the model.

Table 1 Summary of Pertinent Bridge Data

	Existing Bridge	Proposed Bridge*
No. of Spans	3	2
Total Bridge Length (ft)	212	270
No. of Piers	2	1
Pier Width (ft)	2.5	3.0
Bottom Soffit Elevation at Pier (ft, NAVD 88)	465.7 (left pier)	467.0

*Proposed bridge data is preliminary (60% design) and subject to revision.

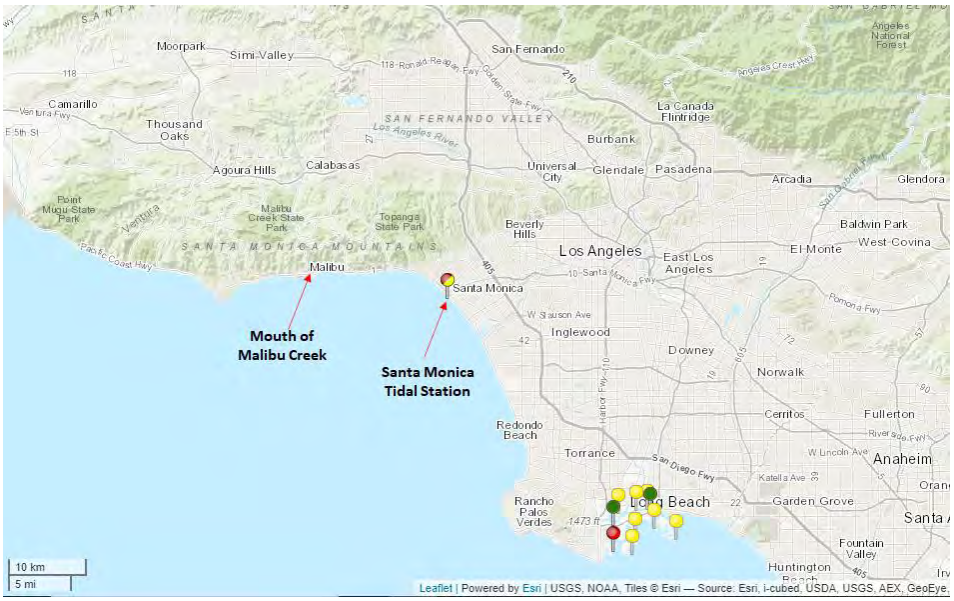
Photo of Malibu Canyon Road Bridge Taken on 9/14/2022 (Looking North)

3.1.6 Manning's *n*

Manning's *n* values are used to account for the resistance to flow exerted by the ground surface or other surface (e.g., vegetation) that the flowing water is exposed to. A greater *n* value indicates greater surface roughness and resistance to flow. The spatially varying Manning's *n* values were initially estimated based on land cover data and the HEC-RAS version 5 User's Manual (HEC, 2016). These initial Manning's *n* values were then modified as needed to reflect observed hydraulic conditions during calibration/verification of the 2D model. Figure 11 shows the final spatial varying Manning's *n* values used in the model after model calibration and verification (see Section 3.2).

3.1.7 Boundary Conditions

The upstream boundaries are located at the upstream ends of the main channel and the tributary Cold Creek of the model domain. The upstream boundary conditions are inflow hydrographs for a selected flood event to be analyzed. The inflow hydrographs for a selected event that has the observed real-time data (or hydrograph) at gaging station F130-R were directly derived from the observed hydrograph based on the drainage area ratio. The inflow hydrographs for an event that does not have the observed hydrograph were derived by scaling the observed hydrograph during the February 7, 1998 high flow event which had the highest peak flow (19,060 cfs) at the gage over the last 30 years (see Figure 12). The downstream boundary was set as the observed time-varying Pacific Ocean tide (at the nearest NOAA Santa Monica tidal station[14]; see the map below) for the model calibration/verification events, and the constant mean higher high water (MHHW) for the scenario simulations. Using MHHW is a standard practice in analyzing riverine flooding in coastal creeks and is commonly used by FEMA for its flood insurance rate maps.



Location of the Santa Monica Tidal Station Relative to the Malibu Creek Mouth

[14] The Santa Monica tidal station is only about 11 miles away from the Malibu Creek mouth. This tidal station would be a good representative of the tide levels at the Malibu Creek mouth.

3.2 Model Calibration and Verification

Model calibration is the process of adjusting the model parameters (within reasonably defensible and/or literature ranges) to best describe observed water levels and stream flows for a selected flow event. For a HEC-RAS model, the most important model parameters are the Manning's *n* values. Model calibration is an important step in model development. Model verification is the next step in model development following the calibration effort. In the model verification step, the calibrated model is used to predict water levels using different flow event(s) from the model calibration. The overall reliability of the model to predict future conditions increases in proportion to the amount of historical data that the model is able to describe successfully.

The following four events were selected for the model calibration and verification based on the high-water mark availability, high flow magnitude (see Figure 12), and recentness of flow events:

- The December 30, 2021 flow event (7,067 cfs at the gage; estimated)
- The February 17, 2017 high flow event (16,949 cfs at the gage; observed)
- The February 7, 1998 high flow event (19,060 cfs at the gage; observed)
- The February 16, 1980 flood event (42,000 cfs at the gage; estimated)

All flow events have known peak stages at the F130-R gage. The December 30, 2021 and the February 7, 1998 flow events have high water marks at the Malibu Canyon Road Bridge (see photos in Figure 13 and the estimation of the water level). The February 16, 1980 flood event is the largest flood over the last 90 years (WY 1931-2022; see Figure 12). An anecdotal report indicated that the 1980 flood did not overtop the bridge deck but was close to the bridge deck. The 1980 flood also caused an inundation depth of about 3 ft at the upstream (U/S) of the Tapia WRF storage building[15]. This anecdotal information was used in the model verification for the 1980 flood. Including the 1980 flood in the model calibration/verification was intended to reflect the backwater effect of the Malibu Canyon Road Bridge more reliably. The other three selected flow events are not big enough for the water level to reach the soffit of the bridge and, thus, would not be able to reflect the backwater effect of the bridge. A reliable simulation of the bridge backwater effect is important for this flood protection evaluation since both the to-be analyzed FEMA 100-year flood and the Capital Flood are high enough for the water level to submerge the bridge soffit and the bridge is located immediately downstream of the Tapia WRF.

Figure 14 shows the LACDPW-estimated hourly flows for the December 30, 2021 event at the F130-R gage. The recorded 5-minute data was lost due to gage malfunction during the event. Figures 15 and 16 show the recorded 5-minute flows at the gage for the February 17, 2017 event and the February 7, 1998 event, respectively. These three graphs also show the observed tide levels at the nearest NOAA Santa Monica tidal gage. There was no time-series flow data available for the February 16, 1980 flood. Its flow hydrograph at the gage was estimated by scaling up the observed February 7, 1998 hydrograph.

Table 2 shows the model calibration/verification results. The final calibrated/verified Manning's *n* values are shown in Figure 11. As shown in Table 2, for all selected flow events, the

[15] The 1980 flood information was described in the Rivertech 1990 study report.

differences between the model-simulated peak water levels and the observed high-water levels are all within the FEMA-required 0.5 ft range. With this accuracy, the model is considered well calibrated/ verified and, thus, reliable.

It is worth noting that the Tapia WRF floodwall was included in the model geometry for the simulation of the 1980 flood although the floodwall was not built at the time. However, the difference in simulated peak water levels between the 1980 condition and the current condition (with the floodwall) would be insignificant. This is indirectly demonstrated in Figure 23 which shows that the difference in simulated peak water levels between the existing floodwall condition and the improved floodwall condition is insignificant.

Table 2 Summary of Model Calibration/Verification Results

		Observed Peak WSE (ft NAVD88)			Simulated Peak WSE (ft NAVD88)			Difference (ft)		
High Flow Event	Peak Flow at the Gage	Gage	Bridge	U/S of Tapia Storage Building	Gage	Bridge	U/S of Tapia Storage Building	Gage	Bridge	U/S of Tapia Storage Building
12/30/2021	7,067 cfs	447.52	460.00(1)	-	447.17	459.63(1)	-	-0.35	-0.37	-
2/17/2017	16,949 cfs	451.97	-	-	451.85	463.49	-	-0.12	-	-
2/7/1998	19,060 cfs	452.75	463.80(2)	-	452.77	464.27	-	0.02	0.47	-
2/16/1980	42,000 cfs	459.59	473.10(3)	478.00(4)	459.66	472.62	478.30	0.07	-0.48	0.30

Notes:

(1) The observed water level at the Malibu Canyon Road Bridge during the 12/30/2021 event was based on the interpretation of the photo taken at 7:00am. The peak time was around 2:00pm.

(2) The observed water level at the Malibu Canyon Road Bridge during the 2/7/1998 event was based on the interpretation of the photo taken on 2/23/1998 (time of the day unknown). The observed water level on 2/23/1998 should be lower than the peak water level on 2/7/1998 since 2/7/1998 had the highest peak flow in the water year 1998 based on the LA County's annual peak flow records.

(3) The observed water level at the Malibu Canyon Road Bridge during the 2/16/1980 event was the bridge deck elevation on the left side of the bridge (looking downstream), which is based on the anecdotal report that the flood did not overtop the bridge deck but was close to the bridge deck that was described in the Rivertech 1990 study report.

(4) The observed water level at the upstream (U/S) of the Tapia storage building during the 2/16/1980 event was based on the inundation depth of about 3 ft described in the Rivertech 1990 study report.

3.3 Model Simulations and Evaluation Results

Using the calibrated/verified model, model simulations were performed for the following three channel conditions to evaluate the adequacy of the Tapia WRF existing flood protection:

1) Existing Condition (with Existing Malibu Canyon Road Bridge)
2) Proposed Malibu Canyon Road Replacement Bridge Condition[16]
3) Proposed Malibu Canyon Road Replacement Bridge Condition plus Removal of the Rindge Dam

Condition (3) above was intended to evaluate the benefit of removal of the abandoned Rindge Dam in reducing the flood water level at the Tapia WRF.

For each condition above, the following two flows were simulated:

- The FEMA 100-year flood
- Los Angeles County's Capital Flood with consideration of debris effect

The estimated peak discharge for the Capital Flood (64,600 cfs at the bridge) has already accounted for burning and sediment bulking. The debris effect during the Capital Flood was additionally considered in the same way as in the LACDPW 2022 modeling, which assumed that two feet of debris will be accumulated on each side of each bridge pier for the full depth of flow.

A total of six (6) model simulations were conducted for evaluation of the adequacy of the Tapia WRF's existing flood protection and summarized in Table 3.

Table 3 Simulation Scenarios for Evaluation of the Adequacy of the Tapia WRF's Existing Flood Protection

Condition	FEMA 100-Year Flood	LA County Capital Flood
1. Existing Condition (with Existing Malibu Canyon Rd Bridge)	×	×
2. Proposed Malibu Canyon Rd Replacement Bridge Condition	×	×
3. Proposed Malibu Canyon Rd Replacement Bridge Condition plus Removal of the Rindge Dam	×	×

There are no time-series flow data available for the FEMA 100-year flood and the Capital Flood. Similar to the simulation for the 1980 flood, the flow hydrographs at the gage were estimated by scaling up the observed February 7, 1998 hydrograph. Model testing was conducted to use the observed February 17, 2017 hydrograph for scaling and found that there was little difference in the simulated peak water levels.

The constant mean higher high water (MHHW)[17] of 5.24 ft NAVD88 observed at the nearest NOAA Santa Monica tidal gage was used as the downstream boundary condition for the scenario simulations. Using MHHW is a standard practice in analyzing riverine flooding in coastal creeks and is commonly used by FEMA for its flood insurance rate maps.

[16] As of January 2023, the proposed Malibu Canyon Road Bridge design by LACDPW is at 60%.

[17] MHHW is the average of the higher of the two high water heights of each tidal day observed over the 19-year National Tidal Datum Epoch (1983-2001).

Modeling Results for the Existing Bridge and Proposed Bridge Conditions

Figure 17 shows the simulated water surface elevation (WSE) profiles along the reach from the F130-R gage to about 1,000 ft upstream of the Tapia WRF under existing and proposed bridge conditions for the Capital Flood and the FEMA 100-year flood. The stationing in the x-axis of the graph is the same as the stationing shown in Figure 8. Figure 17 clearly shows the backwater effect of the Malibu Canyon Road Bridge. Figure 17 also shows that, compared to the existing Malibu Canyon Road Bridge condition, the proposed replacement bridge would reduce the flood water level by about 1.5 ft at the upstream face of the bridge and by about 0.2 ft at the upstream end of the Tapia WRF under the FEMA 100-year flood condition, but would have little effect on the flood water level under the Capital Flood condition.

Figure 18 shows a zoom-in of the WSE profiles in Figure 17 for the reach of interest from the upstream face of the Malibu Canyon Road Bridge to the upstream end of the Tapia WRF. This reach includes the Tapia WRF access road and the floodwall. Figure 18 also shows the creek top of bank elevation profile along the access road (from the bridge to the Tapia WFR entrance gate; station 0 - 730 in the graph), the ground elevation profile along the Tapia WRF downstream fence, and the surveyed elevation profile of the floodwall, as well as the surveyed elevation profile of the Balancing Basin wall at the downstream of the Tapia WRF. The Balancing Basin wall acts as an inside floodwall when flood water overtops the ground elevation of the downstream fence. As shown in Figure 18, under the existing bridge condition, there would be minor overflow through the small opening of the Balancing Basin wall (see the photo below) and through the floodwall segment near station 1350 (the red circled areas in Figure 18) during the FEMA 100-year flood. Under the proposed bridge condition, there would be no overflow to the Tapia WRF during the FEMA 100-year flood. During the Capital Flood, most of the existing floodwall and almost the entire creek bank along the access road would be overtopped.

Photo of the Balancing Basin Wall and the Small Opening
(Looking west or upstream)

Figures 19 and 20 present the simulated inundation extent and depth for the existing bridge condition for the FEMA 100-year flood and the Capital Flood, respectively. As shown in Figure 19, under the existing bridge condition, the Tapia WRF area would have minor flooding at the downstream site during the FEMA 100-year flood, and a portion of the access road would be flooded with an inundation depth up to about 3.5 ft (see the red highlighted number in Figure 19). During the Capital Flood, more than 50% of the Tapia WRF site would be inundated with an inundation depth up to about 9.4 ft, and the entire access road would be flooded with an inundation depth up to about 9.5 ft (see the red highlighted numbers in Figure 20).

Figures 21 and 22 present the simulated inundation extent and depth for the proposed bridge condition for the FEMA 100-year flood and the Capital Flood, respectively. During the FEMA 100-year flood, with the proposed bridge in place, there would be no flooding at the Tapia WRF site (see Figure 21), and the extent of flooding on the access road would be reduced and the inundation depth would be lowered by about 1.2 ft (compare Figures 21 and 19) from a maximum depth of about 3.5 ft to about 2.3 ft. During the Capital Flood, the simulated inundation extent and depth for the proposed bridge condition would be almost the same as that for the existing bridge condition (see Figures 22 and 20). This is expected since there is little difference in the simulated WSE profiles between the two conditions (see Figures 17 or 18).

Modeling Results for the Proposed Bridge Condition plus Removal of the Rindge Dam

Figure 23 presents the simulated WSE profiles along the reach from about 1,000 ft downstream of the Rindge Dam to about 1,000 ft upstream of the Tapia WRF under the proposed bridge condition and the dam removal condition[18] for the Capital Flood and the FEMA 100-year flood. It shows that the backwater effect of the dam would only reach to about 4,200 ft (or 0.8 mile) upstream of the dam during the Capital Flood, which is well below the Tapia WRF. This result is not surprising. As shown in Figure 7 for the channel bed profile, the distance between the dam and the Tapia WRF is relatively long (about 2 miles) and the channel slope upstream of the dam to the streamflow gage F130-R is relatively steep (about 3%), the backwater effect of the dam would not be expected to reach the Tapia WRF. In other words, removal of the abandoned Rindge Dam would not provide any benefit in reducing the flood water level at the Tapia WRF. Note that the red dashed line on Figure 7 and Figure 23 represents the geomorphologically expected average natural grade after removal of the Rindge Dam. Significant deviation from this natural grade would be unlikely after removal of the dam. The backwater-affected reach by the dam is well below the Tapia WRF, indicating that the dam removal would not help with flooding for the Tapia WRF.

[18] The following steps were taken in GIS to create the model geometry for the dam removal condition:

1) Determine the u/s and d/s limits of the natural grade channel bed.
2) Interpolate about 10 cross sections between the u/s and d/s limits to get an estimated natural grade channel thalweg after dam removal.
3) Use the top of bank (TOB) mark (red dots) to identify sediment edge (basically the left/right bank toes of the existing channel bed).
4) Lower the existing bed down to the interpolated bed elevation.
5) Adjust both side slopes so that they basically agree with the existing side slopes.
6) Create a dam removal DEM layer from the interpolated cross sections with lowered channel bed.
7) Create a new DEM by subtracting the above DEM from the 2015/16 LiDAR DEM.

The GIS zonal statistics tool was then used to calculate the total volume removed, which is estimated to be about 600 acre-ft. As a comparison, in 2018 the Army Corps of Engineers estimated the sediment volume behind the dam at about 500 acre-ft.

Proposed Floodwall Improvements and Modeling Results

To prevent the Tapia WRF and the access road from flooding during the Capital Flood, there is a need to raise the existing floodwall and extend the floodwall downstream to the Malibu Canyon Road Bridge. Figure 24 shows the alignment of the existing floodwall and the proposed alignment of the new/extended floodwall. The proposed alignment of the new/extended floodwall is generally along the highest ground of the right bank of the creek (looking downstream).

Figure 25 compares the simulated Capital Flood WSE profiles along the reach of interest from the upstream face of the Malibu Canyon Road Bridge to the upstream end of the Tapia WRF between the existing floodwall and the proposed floodwall improvement conditions under the proposed replacement bridge condition. In the simulation for the proposed floodwall improvement condition, it was assumed that the existing floodwall is raised to an unlimited height and the new/extended floodwall is constructed to an unlimited height so that flooding to the Tapia WRF and the access road would be completely prevented. The resulting WSE elevation profile (the red dashed line shown in Figure 25) will then be used to determine the portion of the existing floodwall that needs to be raised and the height to be raised to, as well as the height for the new/extended floodwall.

As shown in Figure 25, the simulated WSE profile for the proposed floodwall improvement condition (including raising the existing floodwall and extending the floodwall to the Malibu Canyon Road Bridge) is a little higher than that for the existing floodwall condition. This is reasonable since the constriction of floodwater to the channel by the proposed floodwall improvement would hydraulically result in a higher WSE.

Figure 26 presents the simulated Capital Flood inundation extent and depth for the proposed floodwall improvement condition. It shows no flooding in the Tapia WRF and on the access road. This has verified that the proposed floodwall improvement is effective for flood protection.

Note that the simulated Capital Flood inundation extent and depth shown in Figure 26 assumed that the 57”×38” arched storm drain culvert near the Tapia WRF entrance gate (see the photos below) is closed to prevent backup flooding. A valve or gate would need to be installed on the storm drain culvert. In addition, the existing flap gate of the Outfall 001 that discharges to Malibu Creek is stuck open and could be another route for floodwater to inundate the Tapia WRF (similar to the storm drain culvert). The existing flap gate would need to be replaced.

Photo of Tapia WRF Access Road, Storm Drain Location, and Inlet
(Looking west)

4.0 Findings

Below are the major findings from this study:

- Comparison of the LACDPW's 2019 field survey data in the vicinity of the Malibu Canyon Road Bridge and the Los Angeles County's 2015/2016 LiDAR topographic data indicates that the 2015/2016 LiDAR data is still adequate to represent the current channel topography for this flood study, even after the significant wildfires from 2017 to 2018.

- Evaluation of the channel bed profile based on the 2015/2016 LiDAR data indicates that the channel behind the abandoned Rindge Dam is fully filled with sediment. The channel bed behind the dam would be geomorphologically expected to become the natural grade condition after removal of the grade control of the dam. Since the distance between the dam and the Tapia WRF is relatively long (about 2 miles) and the channel slope upstream of the dam to the streamflow gage F130-R is relatively steep (about 3%), the backwater effect of the dam would not be expected to reach the Tapia WRF. This was confirmed by the hydraulic modeling analysis. In other words, removal of the abandoned Rindge Dam would not provide any benefit in reducing the flood water level at the Tapia WRF.

- Compared to the existing Malibu Canyon Road Bridge condition, hydraulic modeling analysis indicates that the proposed Malibu Canyon Road replacement bridge would reduce the flood water level by about 1.5 ft at the upstream face of the bridge and by about 0.2 ft at the upstream end of the Tapia WRF under the FEMA 100-year flood condition, but would have little effect on the flood water level under the Capital Flood condition.

- Under the existing Malibu Canyon Road Bridge condition, hydraulic modeling analysis indicates that the existing flood protection at the Tapia WRF is generally adequate for the FEMA 100-year flood with minor overflow mainly through the small opening of the Balancing Basin wall. With the proposed replacement bridge in place, the existing flood protection at the Tapia WRF is adequate for the FEMA 100-year flood. However, the access road would be flooded under both existing and proposed bridge conditions. Compared to the existing bridge condition, the proposed bridge would reduce the extent of flooding on the access road and lower the inundation depth by about 1.2 ft, from a maximum depth of about 3.5 ft to about 2.3 ft.

- The existing flood protection at the Tapia WRF is inadequate under the LA County's Capital Flood condition. This finding is reasonable since the existing flood protection at the Tapia WRF was designed based on a peak flow of 41,800 cfs at the Tapia WRF that was used in the Rivertech 1990 study, and this peak flow is higher than the FEMA 100-year flood (40,544 cfs at the mouth of Malibu Creek) but significantly lower than the Capital Flood (64,600 cfs at the Tapia WRF). During the Capital Flood, more than 50% of the Tapia WRF site would be inundated with an inundation depth up to about 9.4 ft, and the entire access road would be flooded with an inundation depth up to about 9.5 ft.

- Raising the existing floodwall to appropriate elevations and extending the existing floodwall downstream to the Malibu Canyon Road Bridge along the right bank of the channel (looking downstream) would be effective to protect the Tapia WRF and the

access road from the Capital Flood. Based on the simulated WSE profile shown in Figure 25 (red dashed line), the existing floodwall would need to be raised by up to 5.6 ft and the new floodwall along the access road would need to be up to 10.2 ft in height for the Capital Flood protection. In addition to the floodwall improvements, the stormwater drainage culvert near the Tapia WRF entrance gate would need to install a gate to prevent backup flooding from Malibu Creek during the Capital Flood, and the existing stuck open flap gate of the Outfall 001 that discharges to Malibu Creek would need to be replaced.

5.0 Conceptual Cost Estimates

Conceptual level cost estimates indexed to 2022 dollars were prepared for the following flood protection improvements under both the existing and the LACDPW-proposed Malibu Canyon Road Bridge conditions for both the FEMA 100-year flood and the Capital Flood:

- Raising the existing floodwall at the Tapia WRF;
- Constructing a new floodwall along the access road; and
- Installing a flap gate at the outlet of the storm drain culvert near the Tapia WRF entrance gate and replacing the existing stuck open flap gate of the Outfall 001.

The conceptual cost estimates for the above three improvements are shown in Tables 4, 5, and 6, respectively. Table 7 is a summary of the estimated costs. The following describes the conceptual cost estimates and assumptions:

1) In Table 4, there would be no improvement needed for the FEMA 100-year flood since the existing floodwall at the Tapia WRF is adequate for the FEMA 100-year flood. The existing floodwall would need to be raised for the Capital Flood protection. Examination of the Capital Flood WSE profile shown in Figure 25 indicates that over the 1,124 ft long existing floodwall (including the tributary floodwall), 814 ft long floodwall would need to be raised for the Capital Flood protection. The raising of the existing floodwall considered two segments; the downstream segment (214 ft long; station 1151 to 1365; see Figure 25) and the upstream segment (600 ft long; station 1365 to 2125 excluding the building structures (160 ft long) in between; see Figure 25). The downstream segment would need to be raised by about 5.6 ft and the upstream segment would need to be raised by up to 4.2 ft with an average of about 1.6 ft. It was assumed that the upstream segment of the existing floodwall can be raised directly by an additional average height of about 1.6 ft. But the downstream segment (see the photo below) may not be raised directly by an additional height of 5.6 ft. Figure 27 shows the conceptual designs for raising the downstream segment with supporting columns. This conceptual design was used to derive the unit construction cost for the downstream segment.

Photo of the Downstream Segment of the Existing Floodwall

2) In Table 5, the conceptual cost estimates for the new floodwall along the access road assumed sheet pile wall. The required floodwall length and average height were determined from the simulated WSE profiles and the ground elevation shown in Figure 18.

3) In Table 6, the conceptual cost estimate for installing a flap gate at the outlet of the 57”×38” arched storm drain culvert considered an additional concrete frame for the flap gate to work. The size of the flap gate was assumed to be 60” in diameter.

4) Non-construction cost in the tables was assumed to be 65% of the construction cost. Non-construction cost includes engineering and design (15%), environmental permitting (10%), construction management (10%), and contingency (30%).

Table 4 Cost Estimates for Raising Existing Floodwall

(Total length of existing floodwall: 1,124 ft;
Existing floodwall elevations: 474.7 – 492.2 ft NAVD88)

Condition	Flood Event	Range of Flood WSE (ft NAVD88)	Length of Raised Floodwall (ft)	Maximum Raised Floodwall Height (ft)	Average Raised Floodwall Height (ft)	Average Construction Unit Cost per Linear Foot	Non-Construction Cost (%)	Total Capital Cost
Existing Bridge Condition	FEMA 100yr Flood [1]	474.2 – 478.4	-	-	-	-	-	-
	Capital Flood	480.0 – 483.1	214 (D/S) [2]	5.6	5.6	$800/LF	65%	$282,000
			600 (U/S) [3]	4.2	1.6	$150/LF	65%	$149,000
Proposed Bridge Condition	FEMA 100yr Flood	473.4 – 478.2	-	-	-	-	-	-
	Capital Flood	480.0 – 483.1	214 (D/S)	5.6	5.6	$800/LF	65%	$282,000
			600 (U/S)	4.2	1.6	$150/LF	65%	$149,000

1) Under the existing bridge condition, there would be minor overflow through the small opening of the Balancing Basin wall during the FEMA 100-year flood. The cost estimate for the upgrades to the small opening was not included in this table.
2) D/S: downstream segment (214 ft) of the existing floodwall.
3) U/S: upstream segment (600 ft) of the existing floodwall.

Table 5 Cost Estimates for New Floodwall

(Total length from the downstream end of existing floodwall to Malibu Canyon Road Bridge: 1,150 ft;
Existing ground elevations along new floodwall: 469 – 480 ft NAVD88)

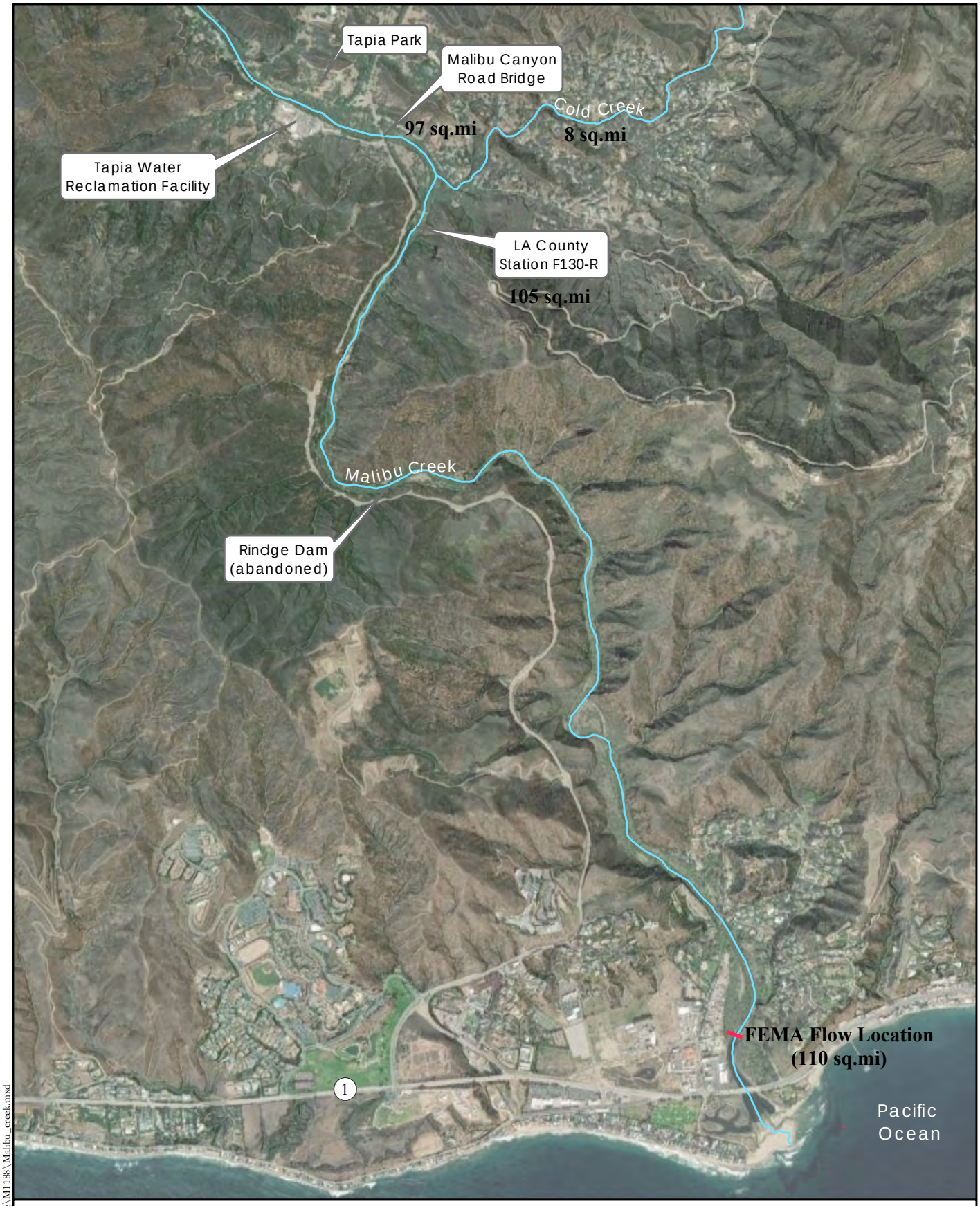
Condition	Flood Event	Range of Flood WSE (ft NAVD88)	Length of New Floodwall (ft)	Maximum New Floodwall Height (ft)	Average New Floodwall Height (ft)	Average Construction Unit Cost per Linear Foot	Non-Construction Cost (%)	Total Capital Cost
Existing Bridge Condition	FEMA 100yr Flood	472.1 – 474.2	819	4.1	2.0	$500/LF	65%	$676,000
	Capital Flood	478.4 – 480.0	1,104	10.2	6.9	$1,700/LF	65%	$3,097,000
Proposed Bridge Condition	FEMA 100yr Flood	470.6 – 473.4	709	3.0	1.1	$300/LF	65%	$351,000
	Capital Flood	478.4 – 480.0	1,104	10.2	6.9	$1,700/LF	65%	$3,097,000

Table 6 Cost Estimates for Installation of a Flap Gate at the Storm Drain Outlet and Replacement of the Flap Gate of the Outfall 001

Item	Construction Unit Cost	Non-Construction Cost (%)	Total Capital Cost
Installation of a Flap Gate at the Storm Drain Outlet	$30,000/EA	65%	$50,000
Replacement of the Flap Gate of the Outfall 001	$3,000/EA	65%	$5,000

Table 7 Summary of Estimated Costs

Condition	Flood Event	**Existing Floodwall Improvement** (From Table 4)	**New Floodwall** (From Table 5)	**Flap Gates** (From Table 6)	**Total Cost**
Existing Bridge Condition	FEMA 100yr Flood	-	$676,000	$55,000	$731,000
	Capital Flood	$431,000	$3,097,000	$55,000	$3,583,000
Proposed Bridge Condition	FEMA 100yr Flood	-	$351,000	$55,000	$406,000
	Capital Flood	$431,000	$3,097,000	$55,000	$3,583,000



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STETSON ENGINEERS INC.

FIGURE 1
LOCATION MAP

0 0.25 0.5 Miles

N

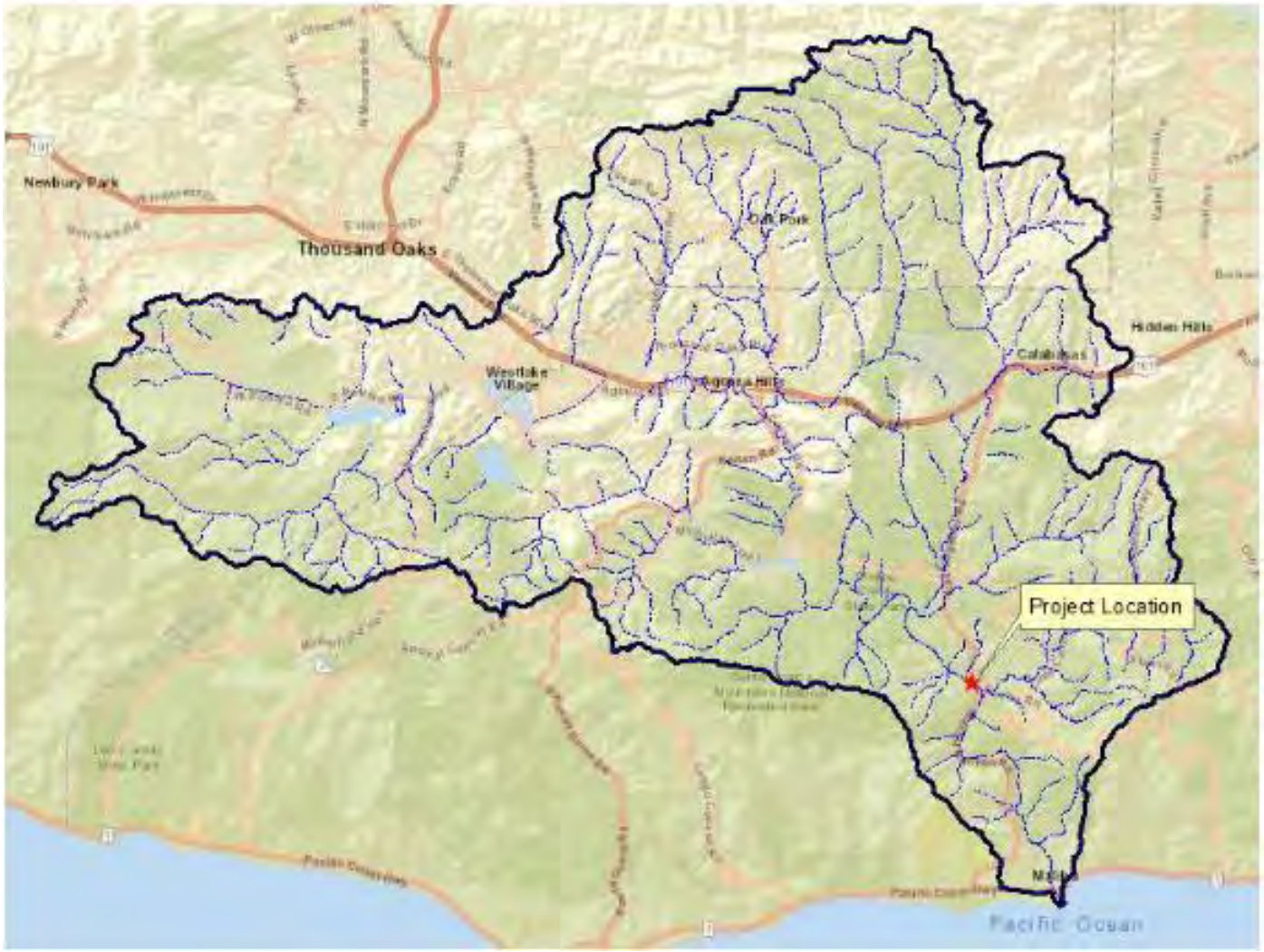


Figure 2 Malibu Creek Watershed and Project Location

Malibu Creek Inflow
Malibu Creek
Tapia WRF
Malibu Canyon Road Bridge
Cold Creek
Cold Creek Inflow
F130-R Gage
Malibu Creek
Rindge Dam
Malibu Creek
2D Model Grid
Existing Floodwall
Malibu Creek
Tapia WRF
Balancing Basin Wall
Malibu Canyon Road Bridge
Downstream Boundary

Legend

- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Canyon Road Bridge
- F130-R Gage
- Rindge Dam
- 2D Model Domain
- Flow Input Locations
- DS Boundary
- Creek

STETSON ENGINEERS INC.

Tapia Water WRF Flood Protection Project

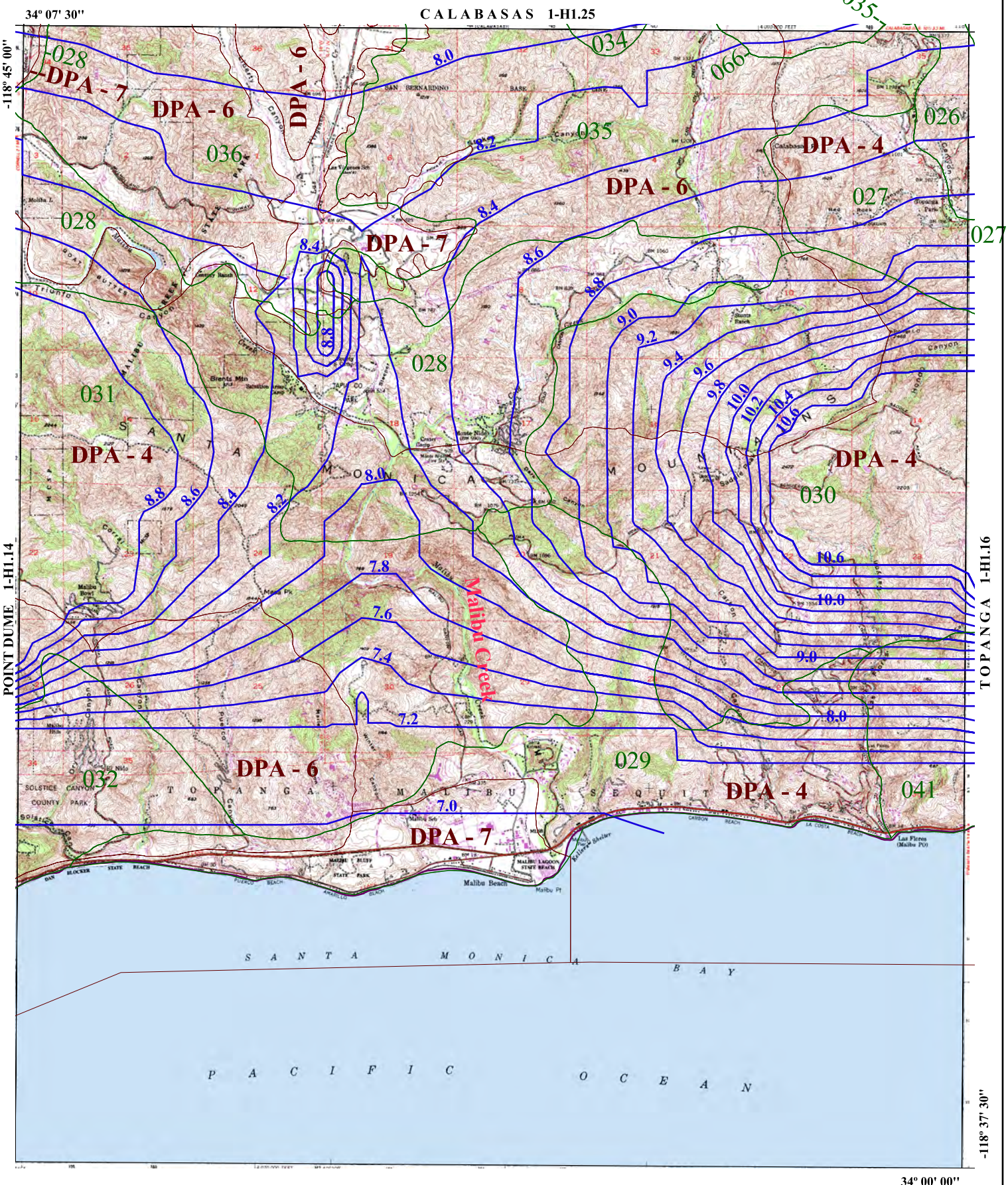
HEC-RAS 2D Model Domain, Model Grid, and Flow Input Locations

0 1,000 2,000 Feet

N

C:\DATA\2852\GIS\Fig 1. Model Domain.mxd 12/5/2022

Figure 4 Malibu Creek Watershed Falls in the Debris Producing Area (DPA) 4 and 6



N W E S

016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

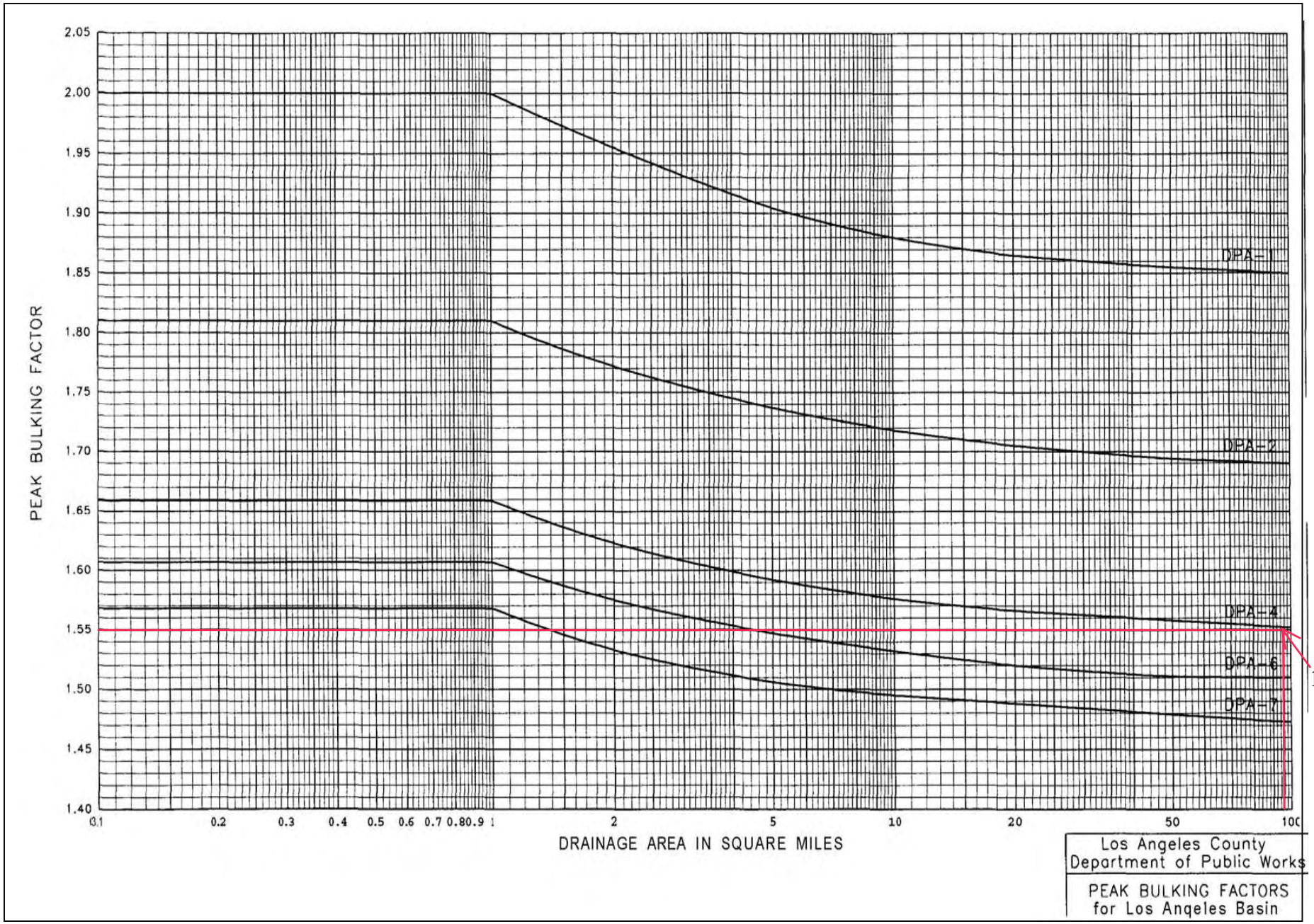
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

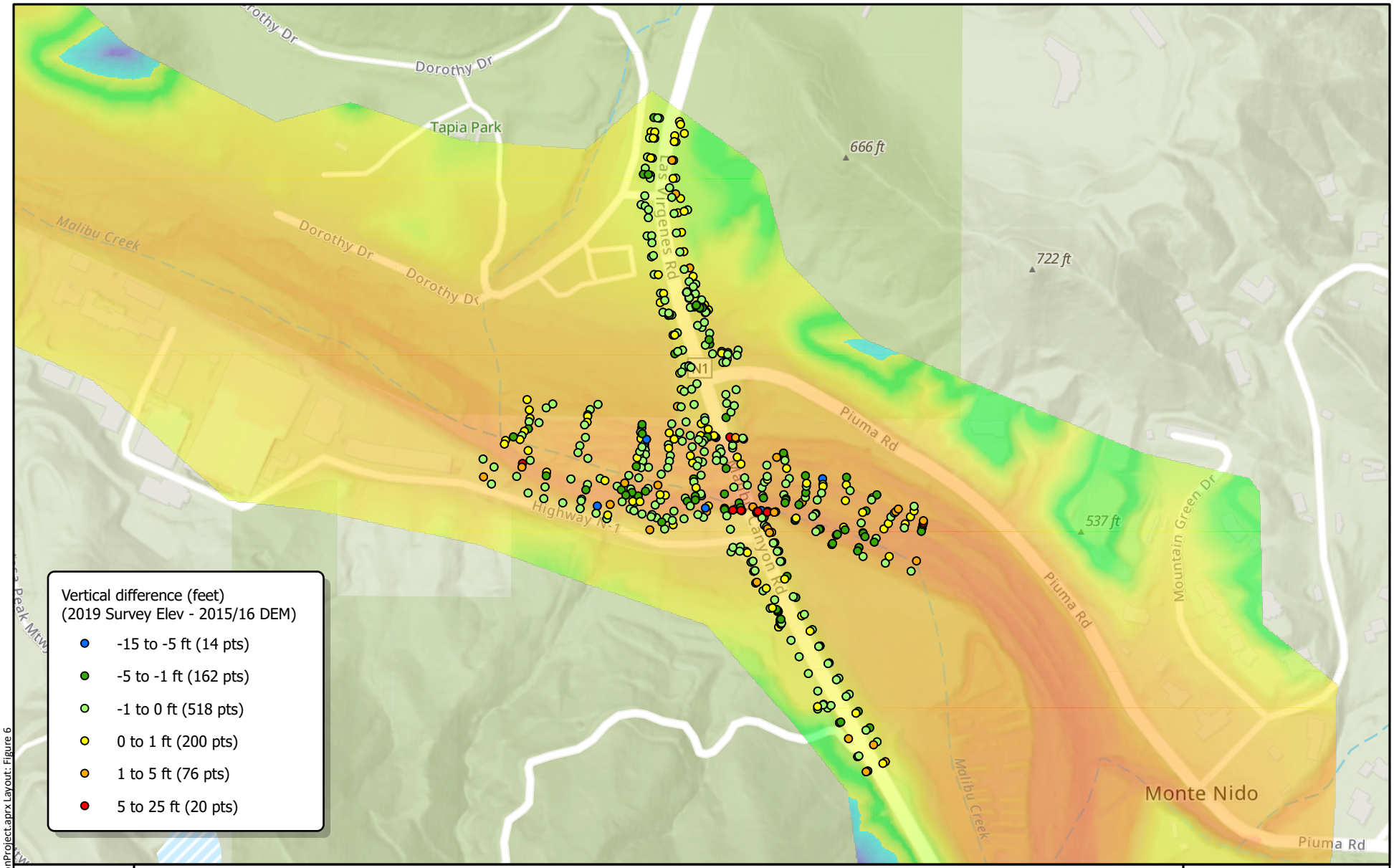
MALIBU BEACH
50-YEAR 24-HOUR ISOHYET

1-H1.15

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

Figure 5
Peak Bulking Factor Curves for Different Debris Producing Areas (DPA)





TOPOGRAPHIC DATA COMPARISON BETWEEN THE 2015/16 LIDAR 3 FT DEM AND THE 2019 FIELD SURVEY

MALIBU CANYON ROAD BRIDGE

STETSON ENGINEERS INC.

N

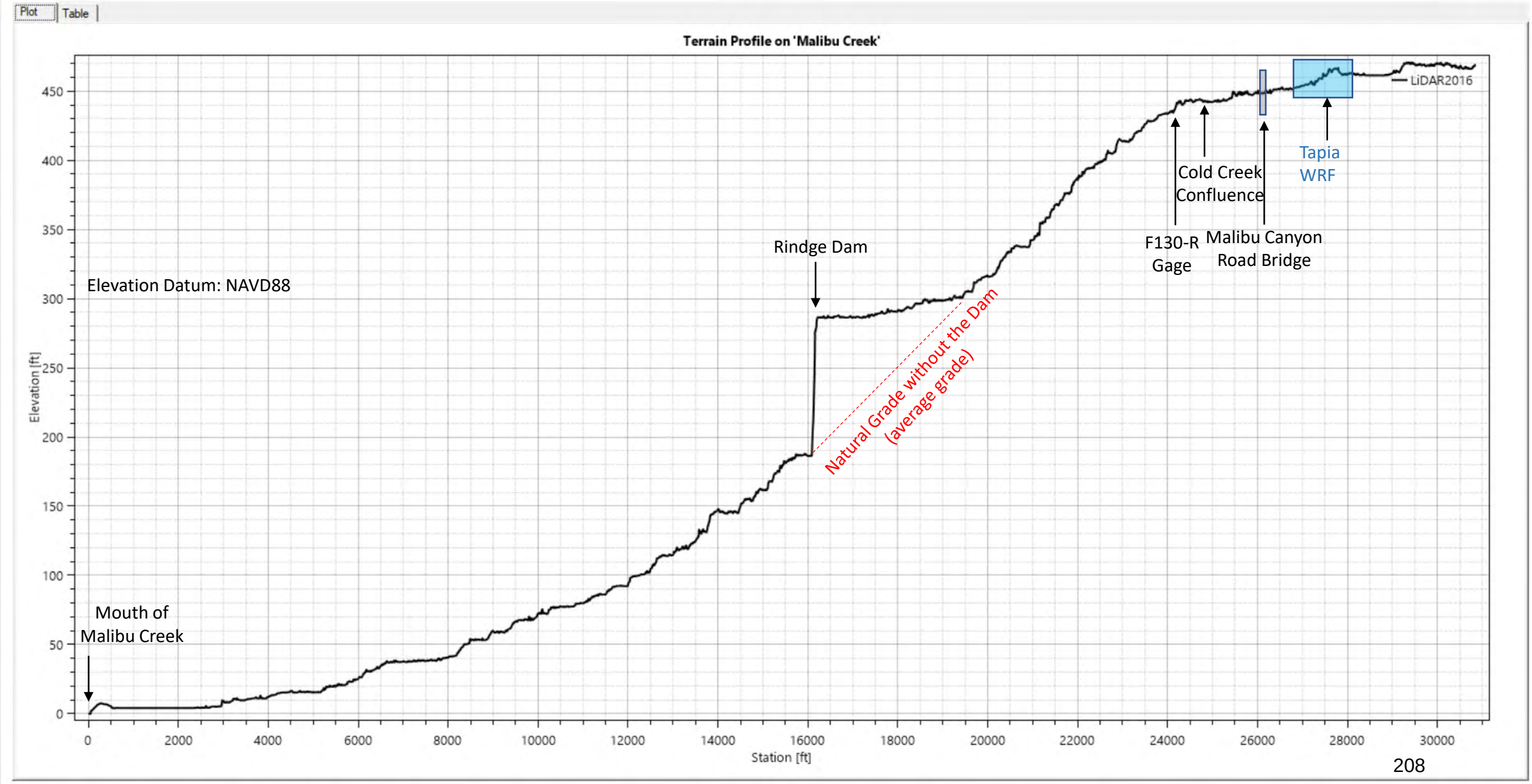
0 100 200 300 400

US Feet

FIGURE 6

Path: J:\jn2852\MalibuCanyonProject.aprx Layout: Figure 6

Figure 7 Malibu Creek Channel Bed Profile Based on the 2015/16 LiDAR Topography Data



F:\DATA\2852\AutoCAD\Stationing.dwg

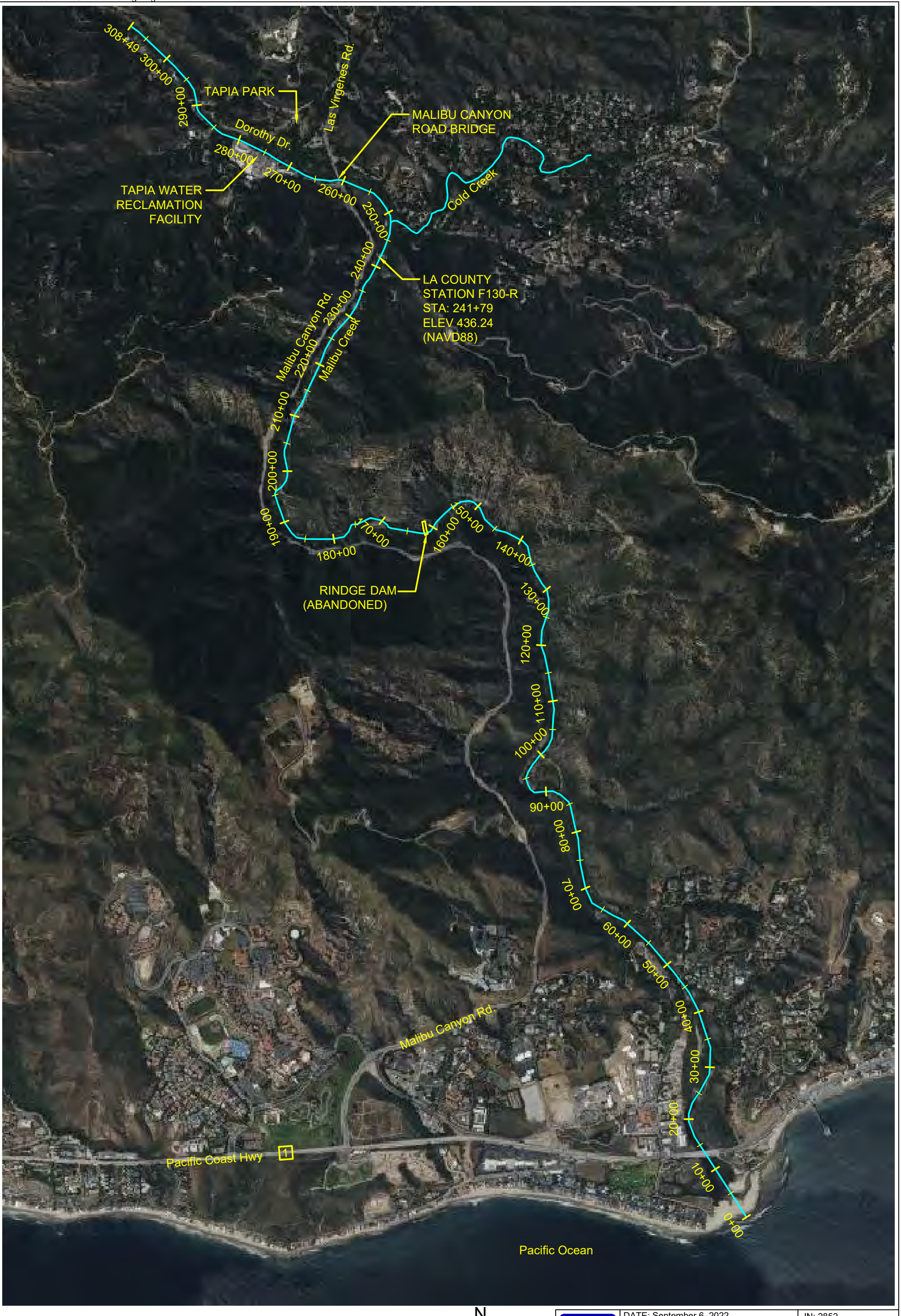


Figure 8

SCALE (Feet)

0 1500 3000

N

W E

S

STETSON ENGINEERS INC.

DATE: September 6, 2022 | JN: 2852

MALIBU CREEK STATIONING PLAN VIEW

209

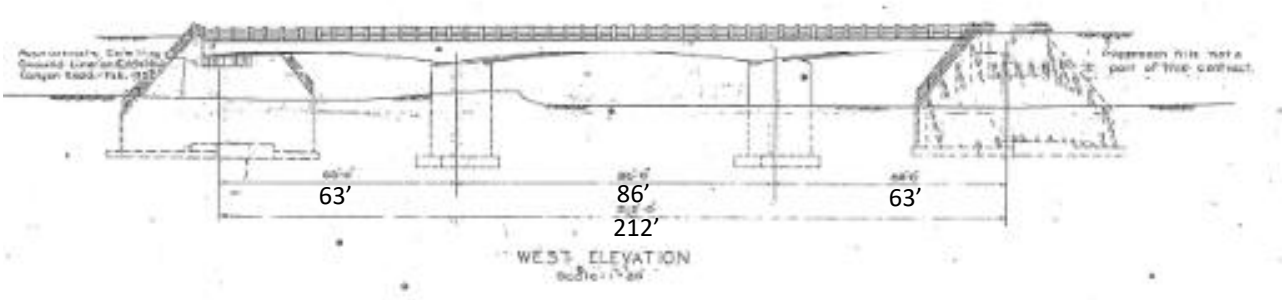


Figure 9a Side View of the Existing Bridge

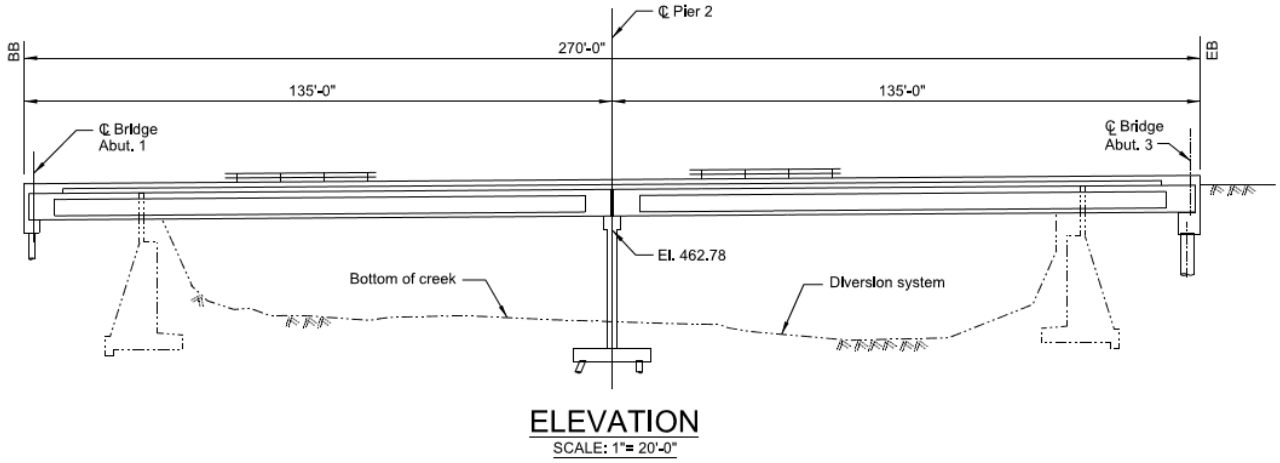


Figure 9b Side View of the Proposed Bridge

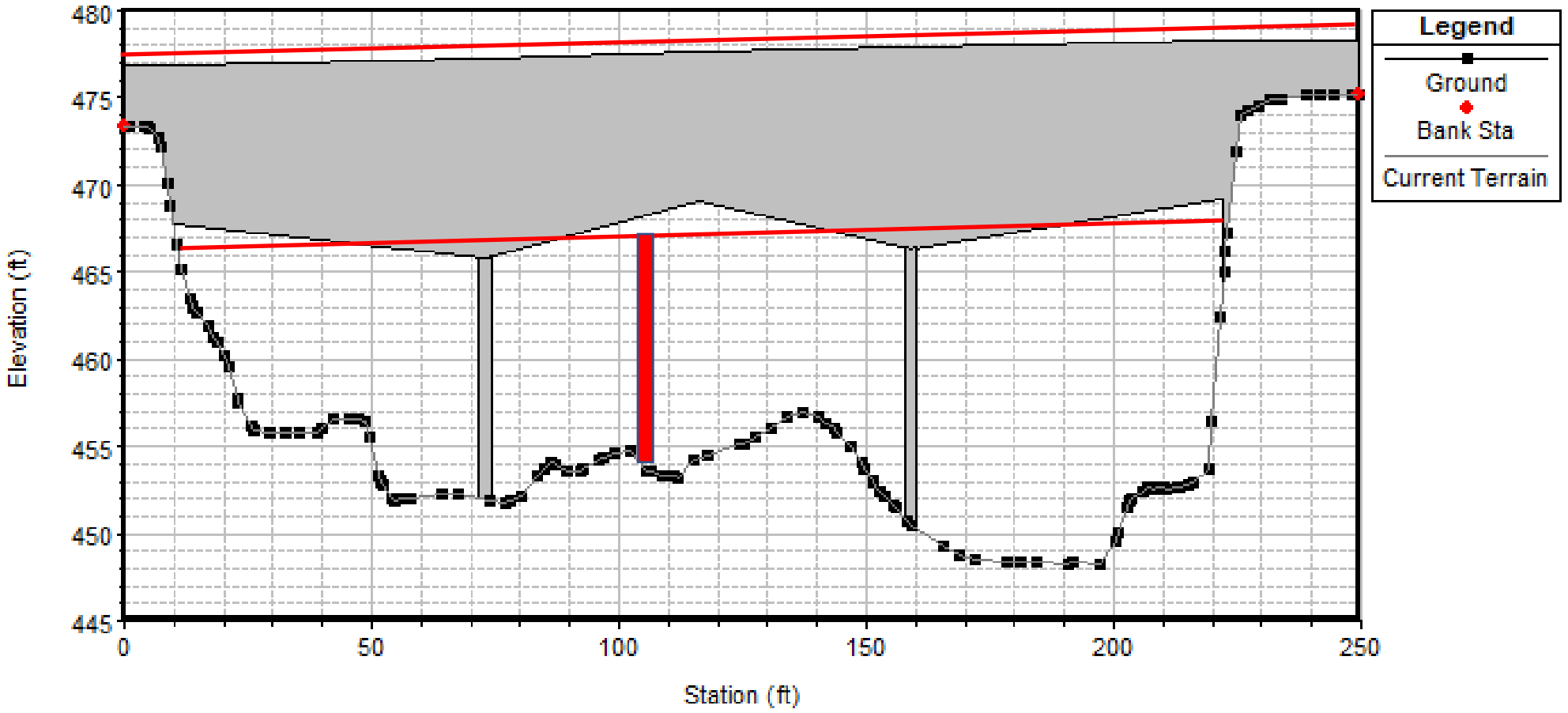


Figure 10 Model Representation of Existing and Proposed Bridges
(gray for existing bridge and red for proposed bridge)

Malibu Creek Inflow
Malibu Creek
Tapia WRF
Malibu Canyon Road Bridge
Cold Creek
Cold Creek Inflow
F130-R Gage
Malibu Creek
Rindge Dam
Malibu Creek
2D Model Grid
Existing Floodwall
Tapia WRF
Balancing Basin Wall
Malibu Canyon Road Bridge
Downstream Boundary

Legend

- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Canyon Road Bridge
- F130-R Gage
- Rindge Dam
- 2D Model Domain
- Flow Input Locations
- DS Boundary
- Creek

Spatially Varying Manning n

0.12	Forested Overland
0.10	Urban
0.08	Forested Channel
0.07	Rocky Channel Bed
0.065	Channel from Gage to Bridge
0.06	Agriculture
0.055	Channel u/s of Bridge
0.05	Shrubland
0.045	Wetted channel
0.04	Herbaceous
0.035	Open Water
0.02	Parking Lot
0.016	Road Surface

C:\DATA\2852\GIS\Fig 2. Manning's n.mxd 12/5/2022

STETSON ENGINEERS INC.

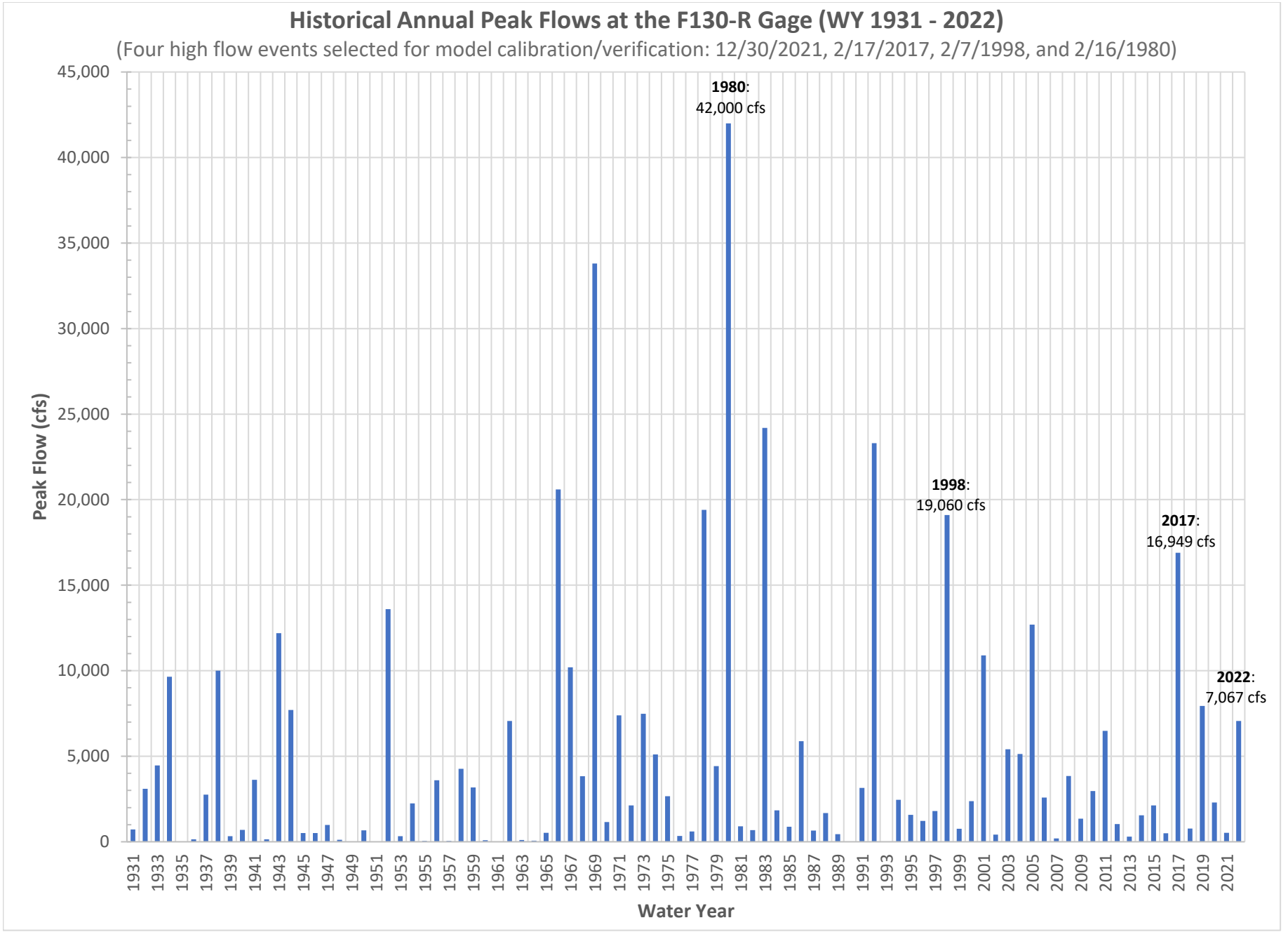
Tapia Water WRF Flood Protection Project

HEC-RAS 2D Model Spatially Varying Manning's n

0 1,000 2,000 Feet

N

Figure 12


Historical Annual Peak Flows at the F130-R Gage (WY 1931 - 2022)
(Four high flow events selected for model calibration/verification: 12/30/2021, 2/17/2017, 2/7/1998, and 2/16/1980)
Peak Flow (cfs)
Water Year
1980: 42,000 cfs
1998: 19,060 cfs
2017: 16,949 cfs
2022: 7,067 cfs

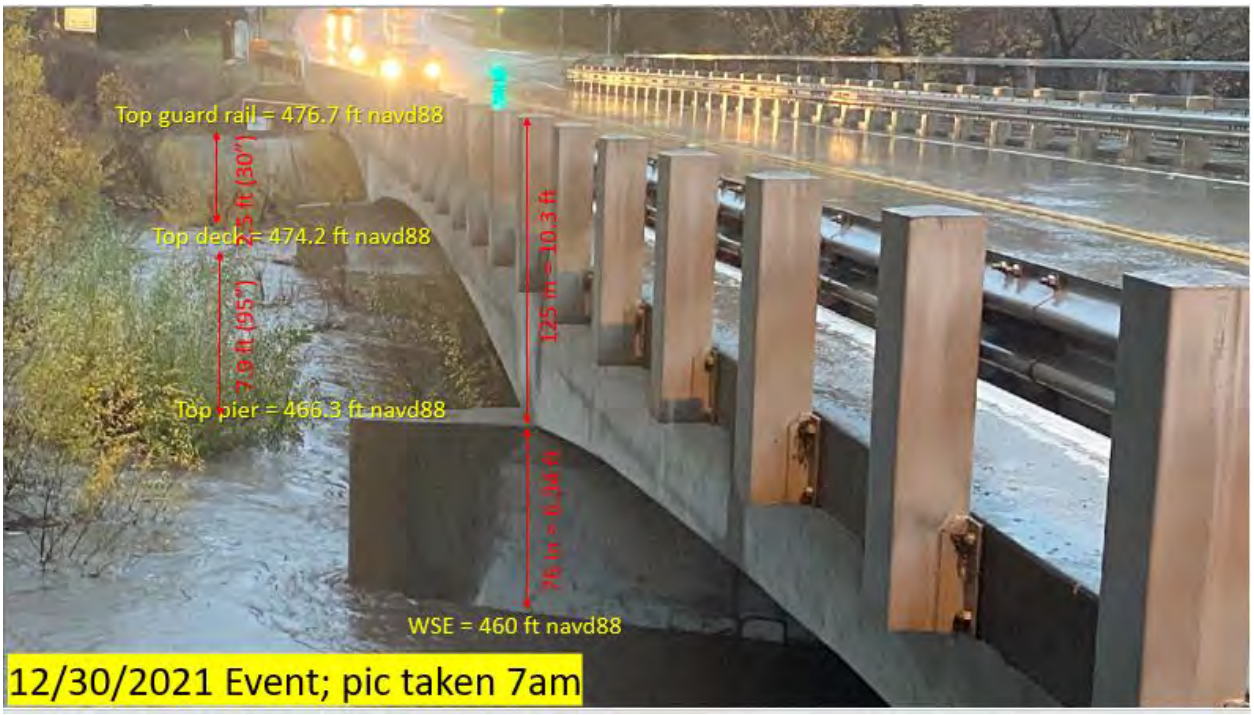


Figure 13 Water Level Estimation of the High Water Marks at the Malibu Canyon Road Bridge during the 12/30/2021 Flow Event and the 2/23/1998 Event (Note: The 2/7/1998 flow event was greater than the 2/23/1998 event, the available HWM during the 2/23/1998 was used as a substitute.)

Figure 14

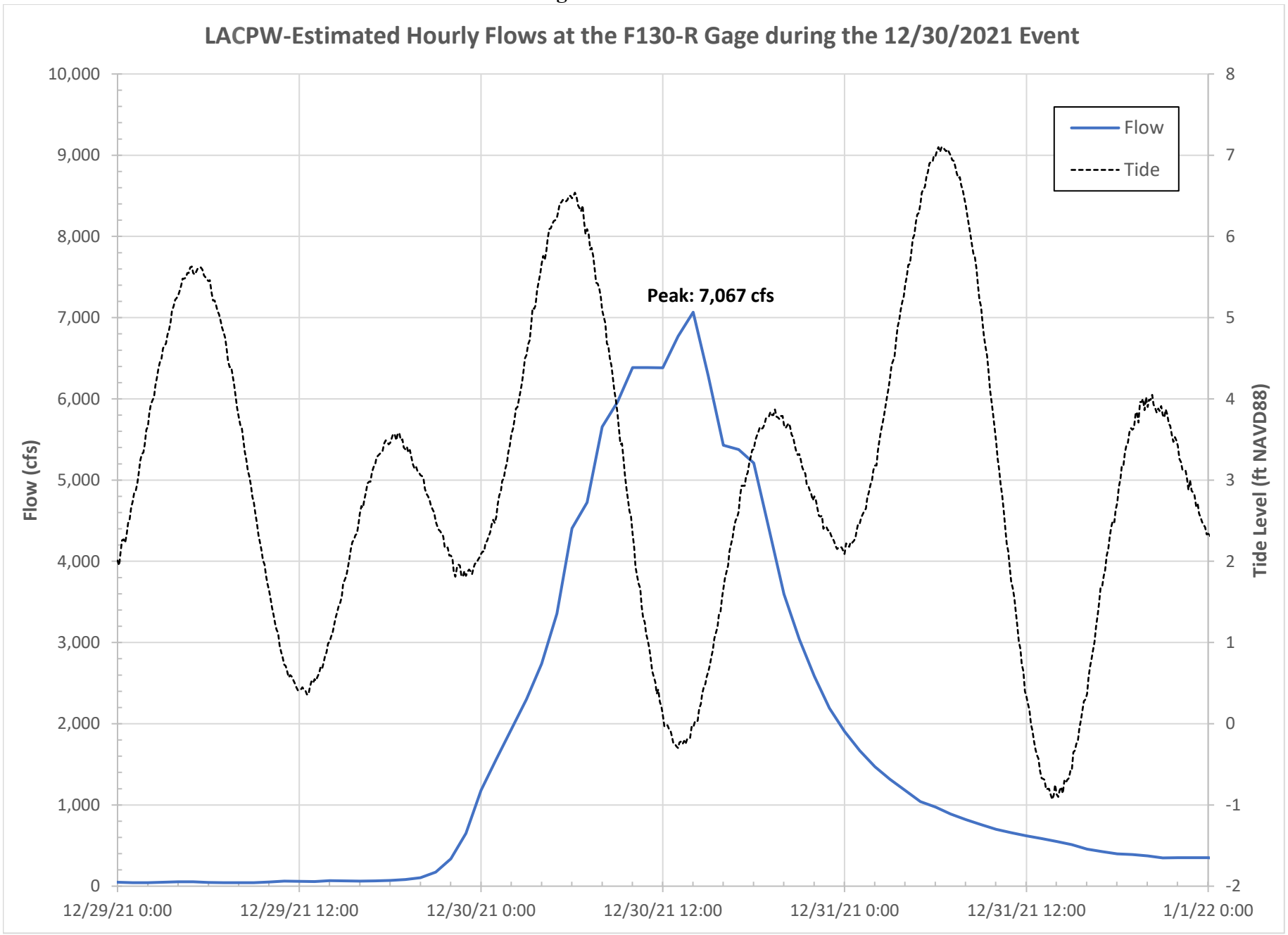

LACPW-Estimated Hourly Flows at the F130-R Gage during the 12/30/2021 Event
Flow (cfs)
Tide Level (ft NAVD88)
Flow
Tide
Peak: 7,067 cfs
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
8
7
6
5
4
3
2
1
0
-1
-2
12/29/21 0:00
12/29/21 12:00
12/30/21 0:00
12/30/21 12:00
12/31/21 0:00
12/31/21 12:00
1/1/22 0:00

Figure 15

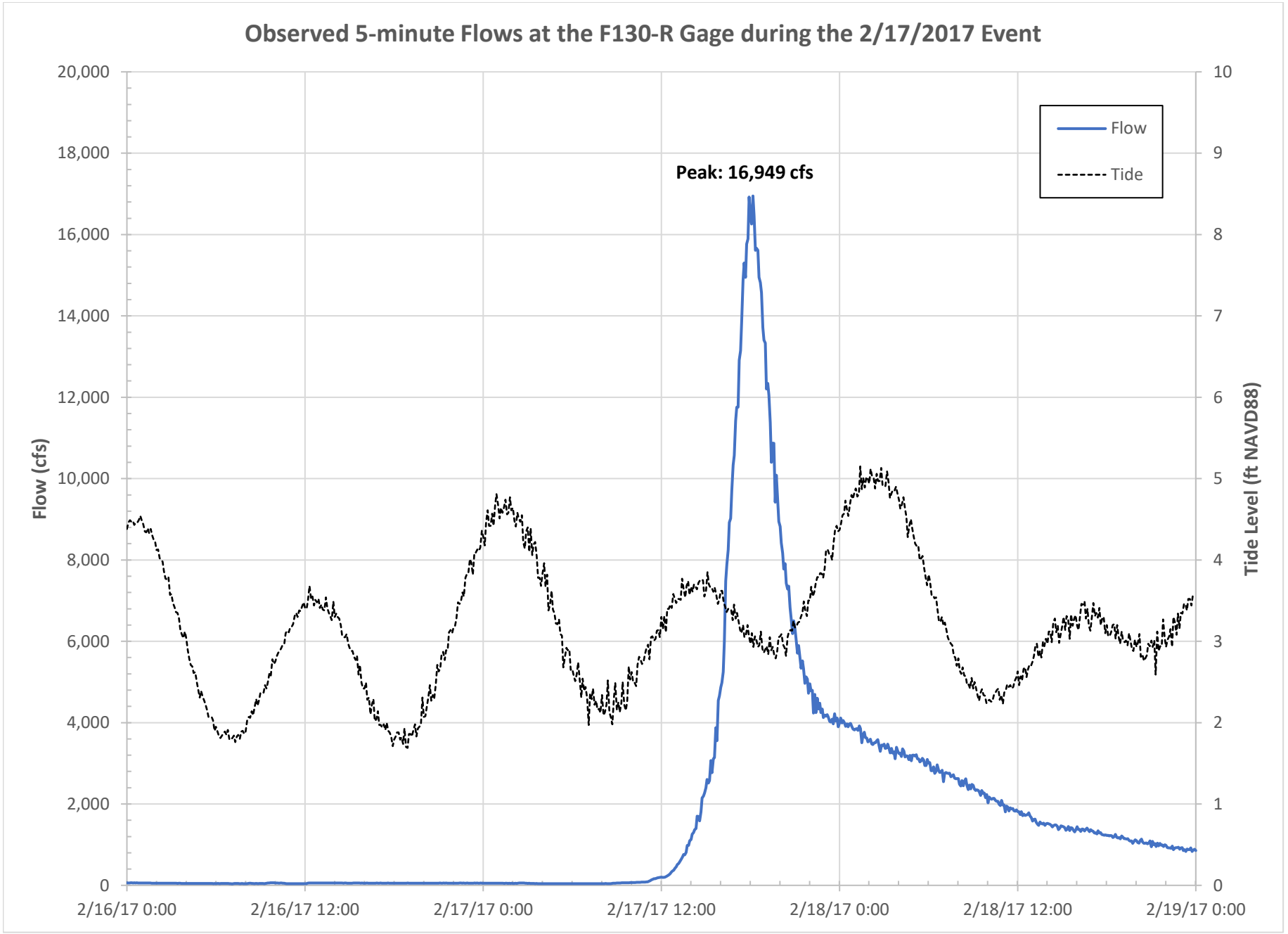

Observed 5-minute Flows at the F130-R Gage during the 2/17/2017 Event
Peak: 16,949 cfs
Flow
Tide
Flow (cfs)
Tide Level (ft NAVD88)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
10
9
8
7
6
5
4
3
2
1
0
2/16/17 0:00
2/16/17 12:00
2/17/17 0:00
2/17/17 12:00
2/18/17 0:00
2/18/17 12:00
2/19/17 0:00

Figure 16

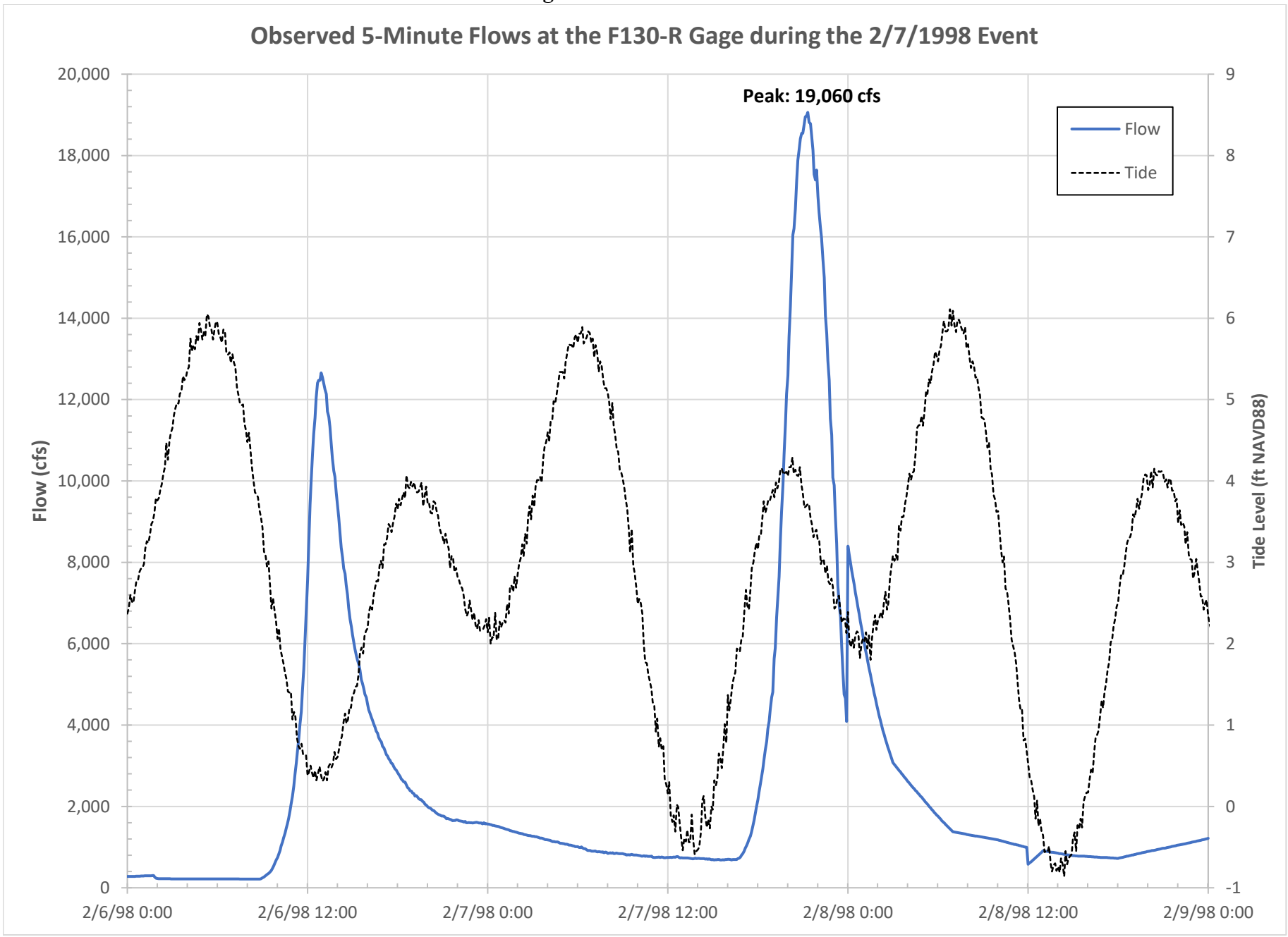

Observed 5-Minute Flows at the F130-R Gage during the 2/7/1998 Event
Peak: 19,060 cfs
Flow
Tide
Flow (cfs)
Tide Level (ft NAVD88)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
9
8
7
6
5
4
3
2
1
0
-1
2/6/98 0:00
2/6/98 12:00
2/7/98 0:00
2/7/98 12:00
2/8/98 0:00
2/8/98 12:00
2/9/98 0:00

Figure 17

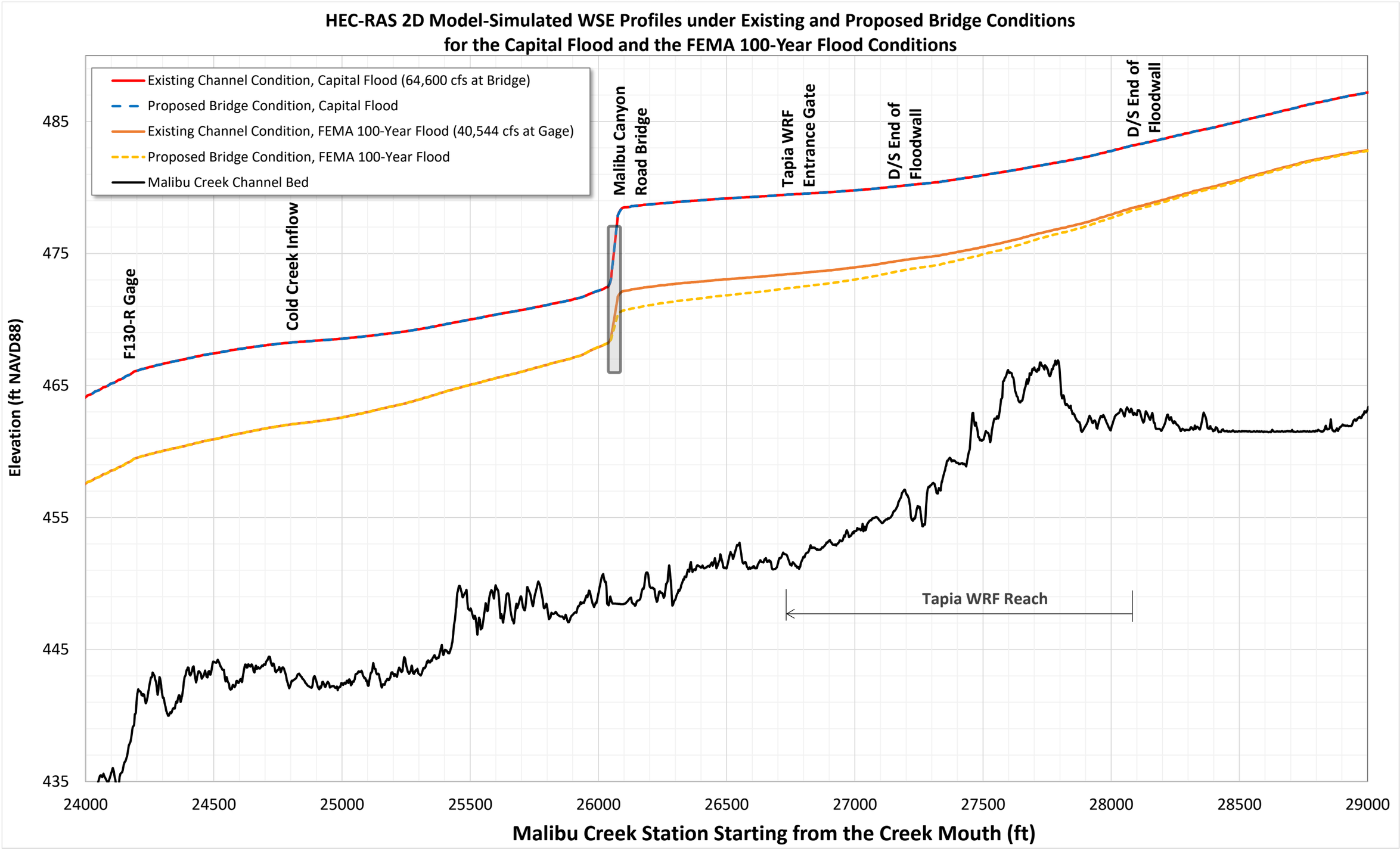
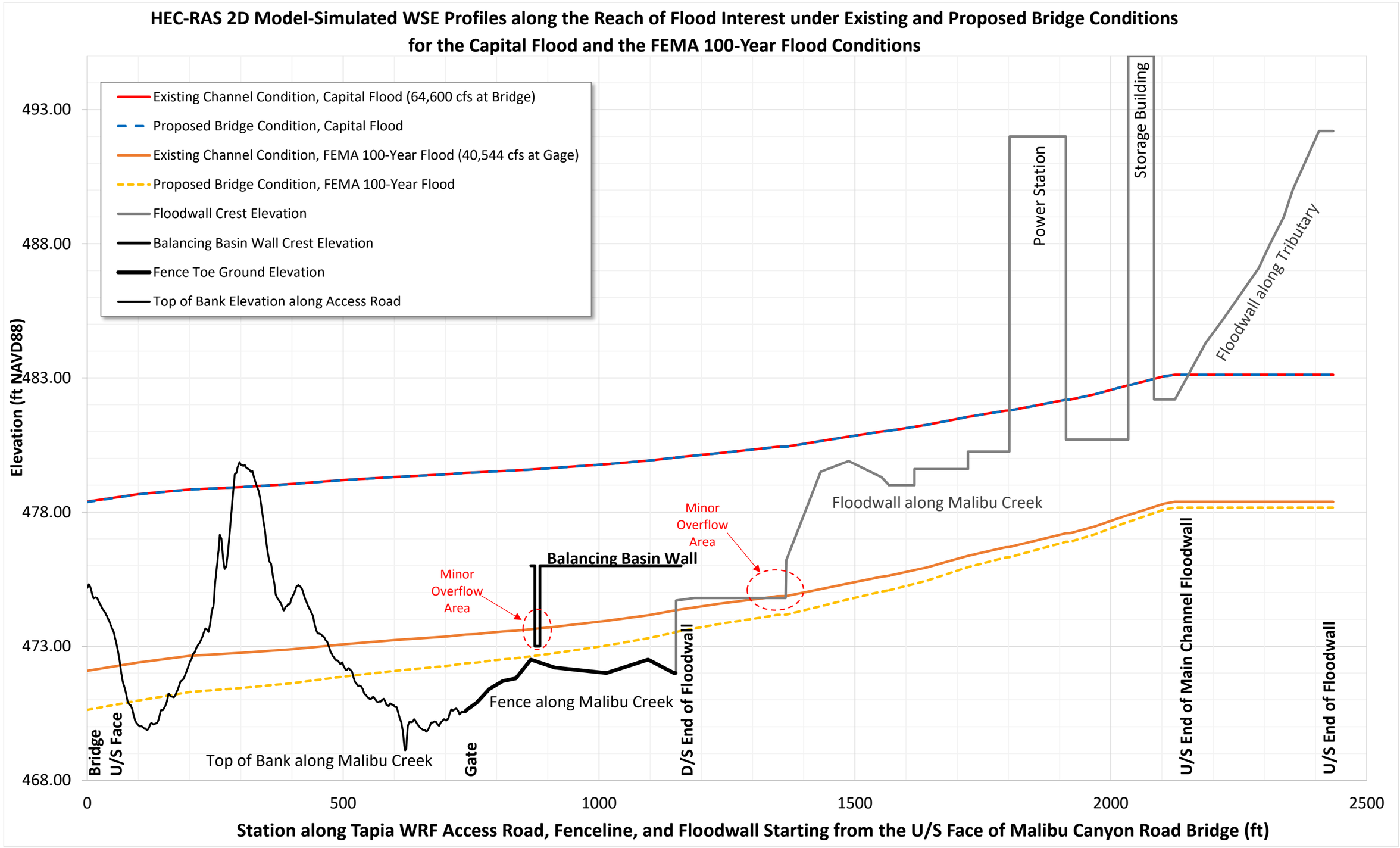
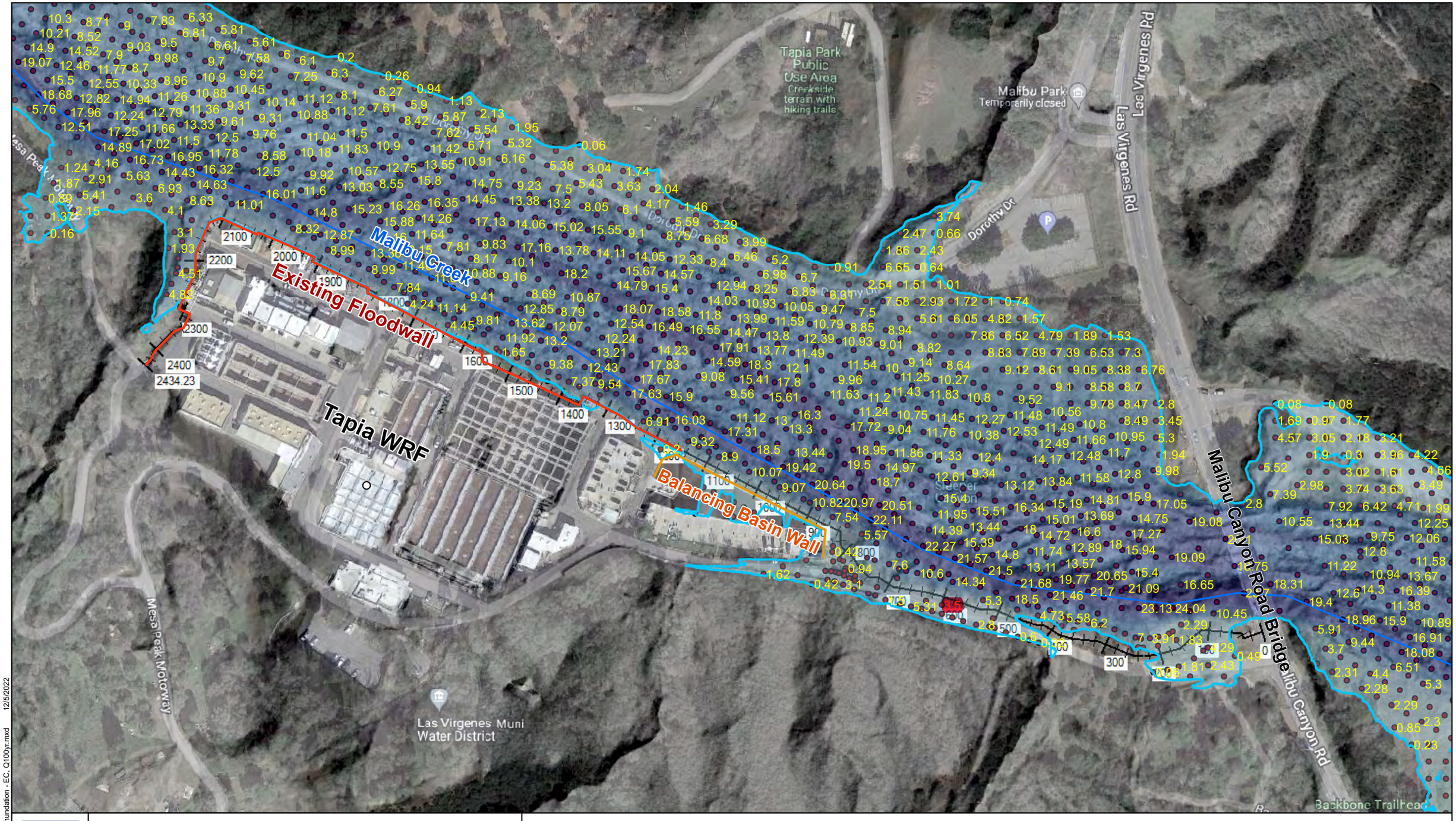

HEC-RAS 2D Model-Simulated WSE Profiles under Existing and Proposed Bridge Conditions
for the Capital Flood and the FEMA 100-Year Flood Conditions
Existing Channel Condition, Capital Flood (64,600 cfs at Bridge)
Proposed Bridge Condition, Capital Flood
Existing Channel Condition, FEMA 100-Year Flood (40,544 cfs at Gage)
Proposed Bridge Condition, FEMA 100-Year Flood
Malibu Creek Channel Bed
F130-R Gage
Cold Creek Inflow
Malibu Canyon Road Bridge
Tapia WRF Entrance Gate
D/S End of Floodwall
D/S End of Floodwall
Tapia WRF Reach
Elevation (ft NAVD88)
485
475
465
455
445
435
24000
24500
25000
25500
26000
26500
27000
27500
28000
28500
29000
Malibu Creek Station Starting from the Creek Mouth (ft)

Figure 18


HEC-RAS 2D Model-Simulated WSE Profiles along the Reach of Flood Interest under Existing and Proposed Bridge Conditions
for the Capital Flood and the FEMA 100-Year Flood Conditions
Existing Channel Condition, Capital Flood (64,600 cfs at Bridge)
Proposed Bridge Condition, Capital Flood
Existing Channel Condition, FEMA 100-Year Flood (40,544 cfs at Gage)
Proposed Bridge Condition, FEMA 100-Year Flood
Floodwall Crest Elevation
Balancing Basin Wall Crest Elevation
Fence Toe Ground Elevation
Top of Bank Elevation along Access Road
Elevation (ft NAVD88)
493.00
488.00
483.00
478.00
473.00
468.00
0
500
1000
1500
2000
2500
Station along Tapia WRF Access Road, Fenceline, and Floodwall Starting from the U/S Face of Malibu Canyon Road Bridge (ft)
Power Station
Storage Building
Floodwall along Tributary
Floodwall along Malibu Creek
Minor Overflow Area
Minor Overflow Area
Balancing Basin Wall
Fence along Malibu Creek
Top of Bank along Malibu Creek
Bridge U/S Face
Gate
D/S End of Floodwall
U/S End of Main Channel Floodwall
U/S End of Floodwall



Tapia Water WRF Flood Protection Project

HEC-RAS Model Simulated Inundation Extent and Depth
Existing Condition, FEMA Q100yr Flood

STETSON ENGINEERS INC.

Legend

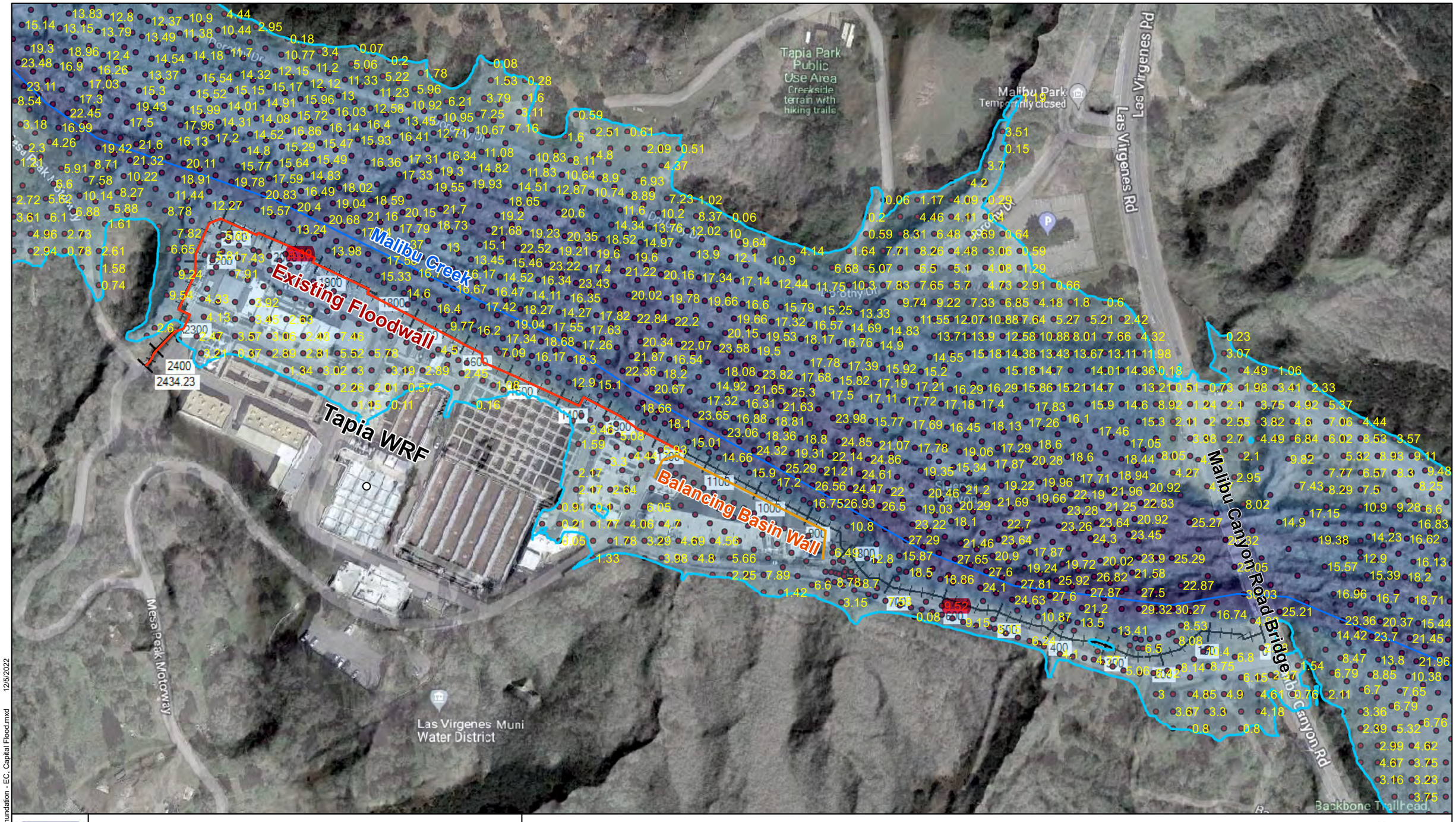
- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Creek
- Inundation Extent - Existing, FEMA Q100yr Flood
- Inundation Depth (ft)

N

0 100 200 Feet

220

C:\DATA\2852\GIS\Fig 4. Inundation - EC, Q100yr.mxd 12/5/2022



STETSON ENGINEERS INC.

Tapia Water WRF Flood Protection Project

HEC-RAS Model Simulated Inundation Extent and Depth
Existing Condition, Capital Flood

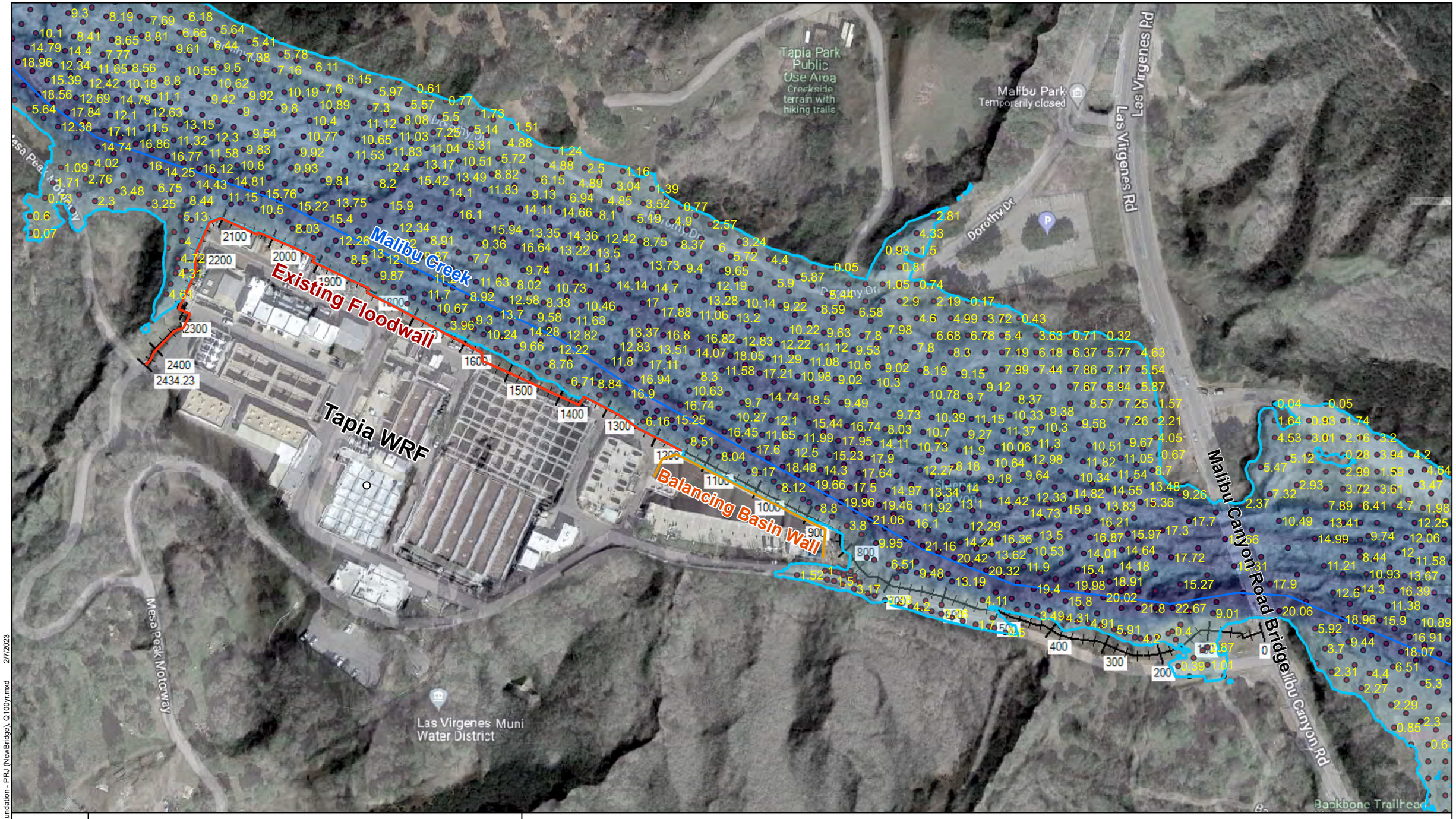
Legend

- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Creek
- Inundation Extent - Existing, Capital Flood
- Inundation Depth (ft)

N

0 100 200 Feet

C:\DATA\2852\GIS\Fig 5. Inundation - EC, Capital Flood.mxd 12/5/2022



Tapia Water WRF Flood Protection Project

HEC-RAS Model Simulated Inundation Extent and Depth
Proposed Bridge Condition, FEMA Q100yr Flood

Legend

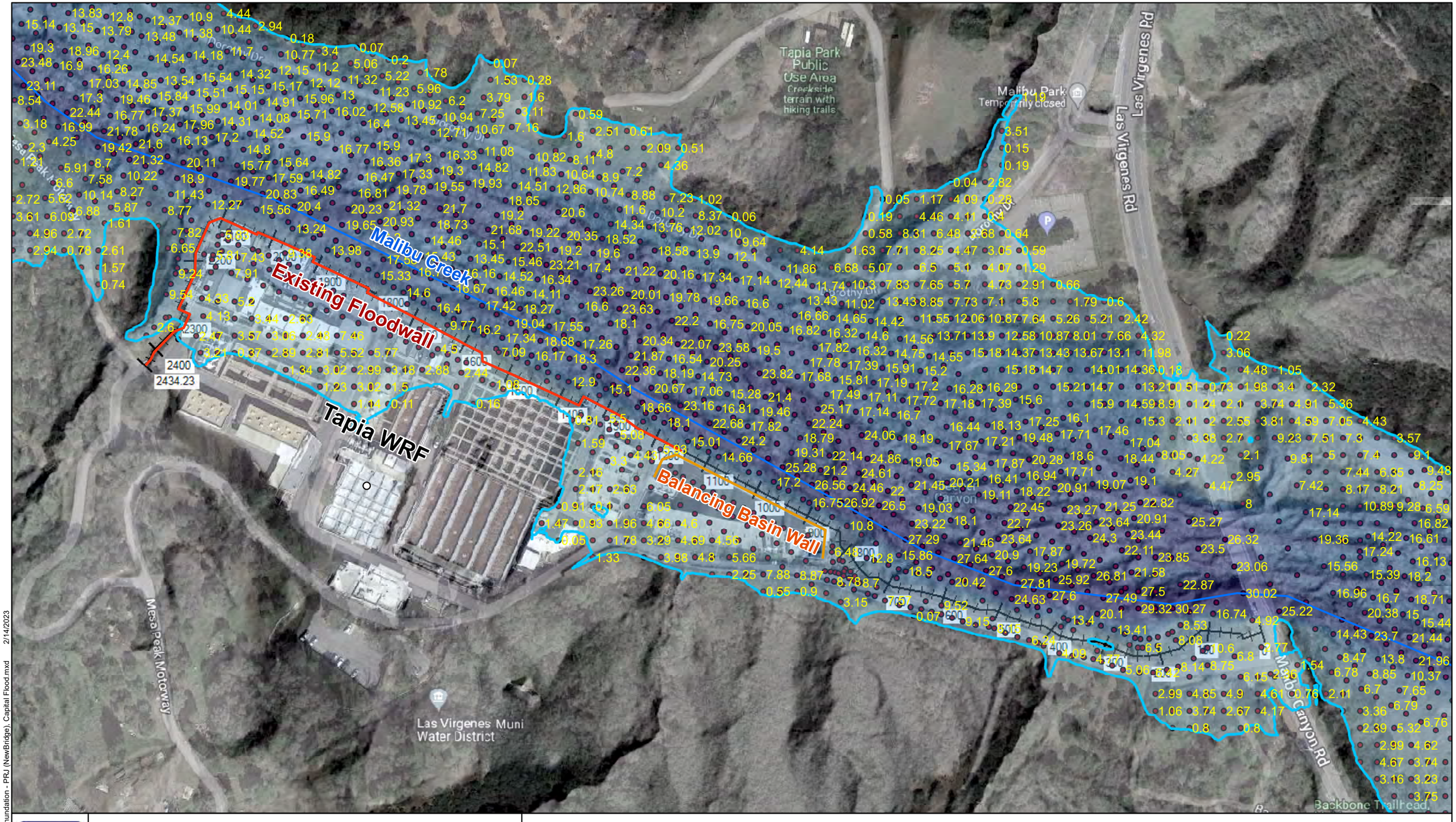
- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Creek
- Inundation Extent - Proposed Bridge, FEMA Q100yr Flood
- Inundation Depth (ft)

N

0 100 200 Feet

STETSON ENGINEERS INC.

C:\DATA\2852\GIS\Fig x. Inundation - PRJ (NewBridge), Q100yr.mxd 2/7/2023



C:\DATA\2852\GIS\Fig x. Inundation - PRJ (NewBridge), Capital Flood.mxd 2/14/2023

STETSON ENGINEERS INC.

Tapia Water WRF Flood Protection Project

HEC-RAS Model Simulated Inundation Extent and Depth
Proposed Bridge Condition, Capital Flood

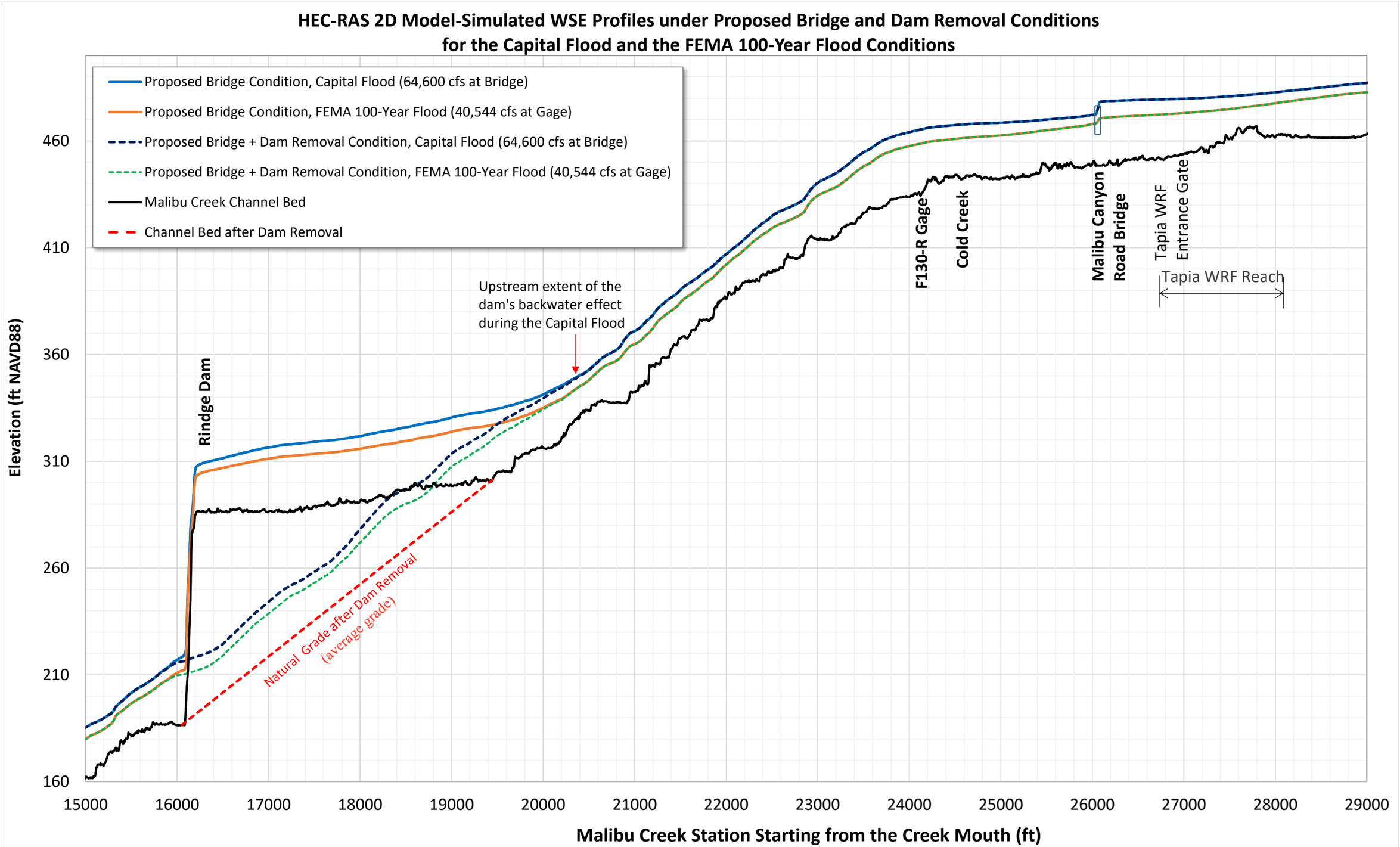
Legend

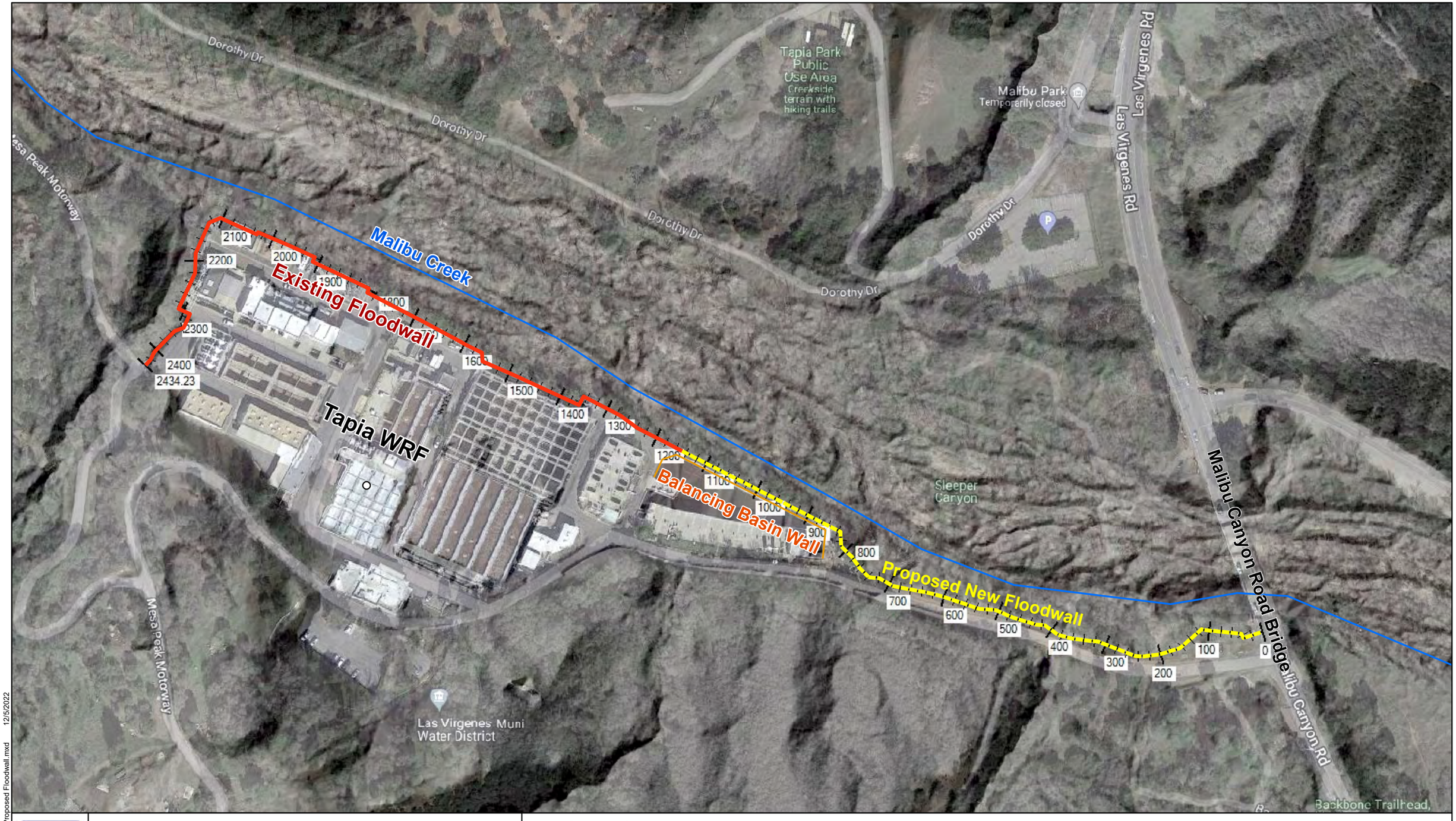
- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Malibu Creek
- Inundation Extent - Proposed Bridge, FEMA Q100yr Flood

N

0 100 200 Feet

Figure 23


HEC-RAS 2D Model-Simulated WSE Profiles under Proposed Bridge and Dam Removal Conditions
for the Capital Flood and the FEMA 100-Year Flood Conditions
Proposed Bridge Condition, Capital Flood (64,600 cfs at Bridge)
Proposed Bridge Condition, FEMA 100-Year Flood (40,544 cfs at Gage)
Proposed Bridge + Dam Removal Condition, Capital Flood (64,600 cfs at Bridge)
Proposed Bridge + Dam Removal Condition, FEMA 100-Year Flood (40,544 cfs at Gage)
Malibu Creek Channel Bed
Channel Bed after Dam Removal
Elevation (ft NAVD88)
460
410
360
310
260
210
160
Rindge Dam
Upstream extent of the dam's backwater effect during the Capital Flood
F130-R Gage
Cold Creek
Malibu Canyon Road Bridge
Tapia WRF Entrance Gate
Tapia WRF Reach
Natural Grade after Dam Removal (average grade)
15000
16000
17000
18000
19000
20000
21000
22000
23000
24000
25000
26000
27000
28000
29000
Malibu Creek Station Starting from the Creek Mouth (ft)



C:\DATA\2852\GIS\Fig 3. Proposed Floodwall.mxd 12/5/2022

STETSON ENGINEERS INC.

Tapia Water WRF Flood Protection Project

Proposed New Floodwall

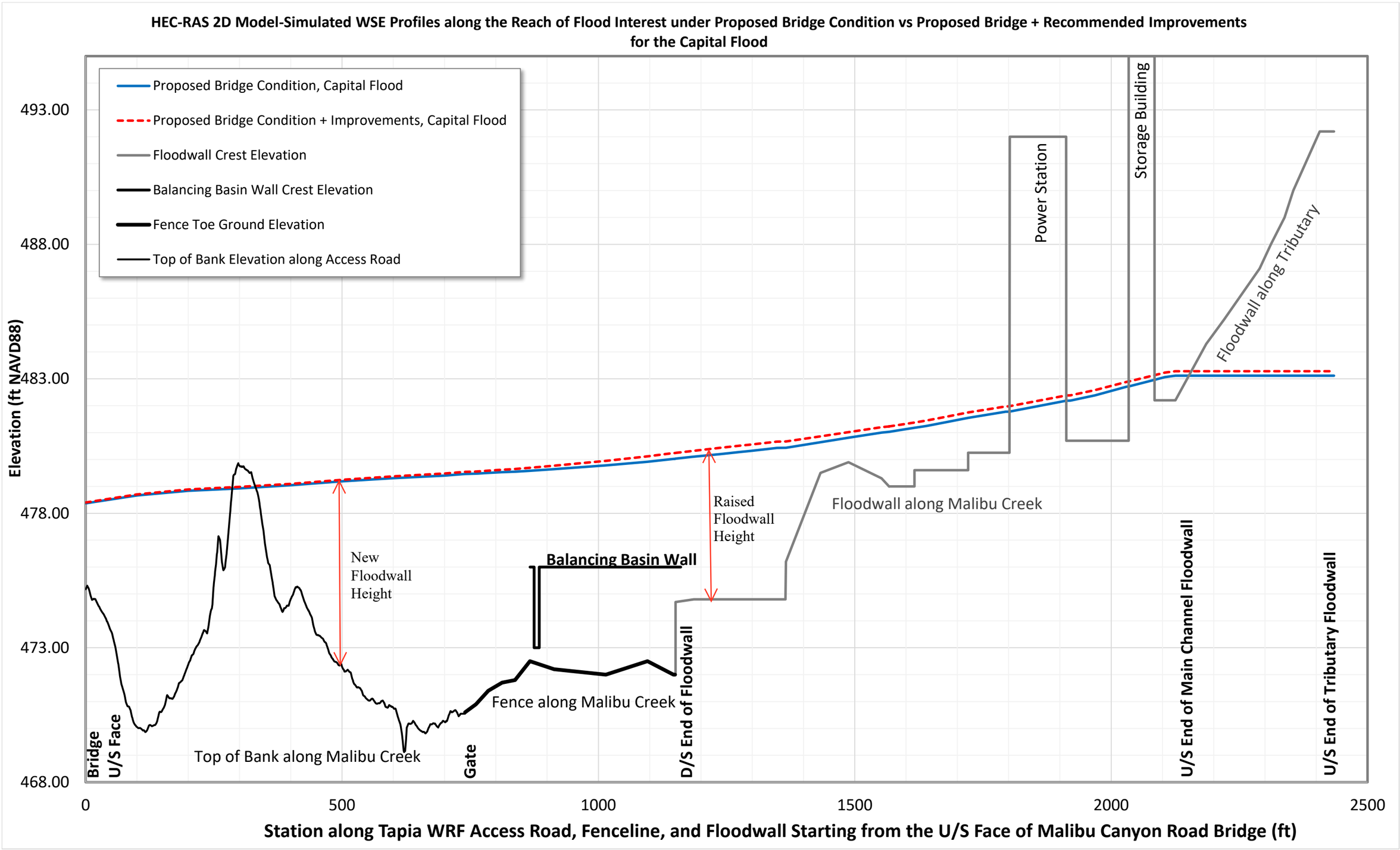
Legend

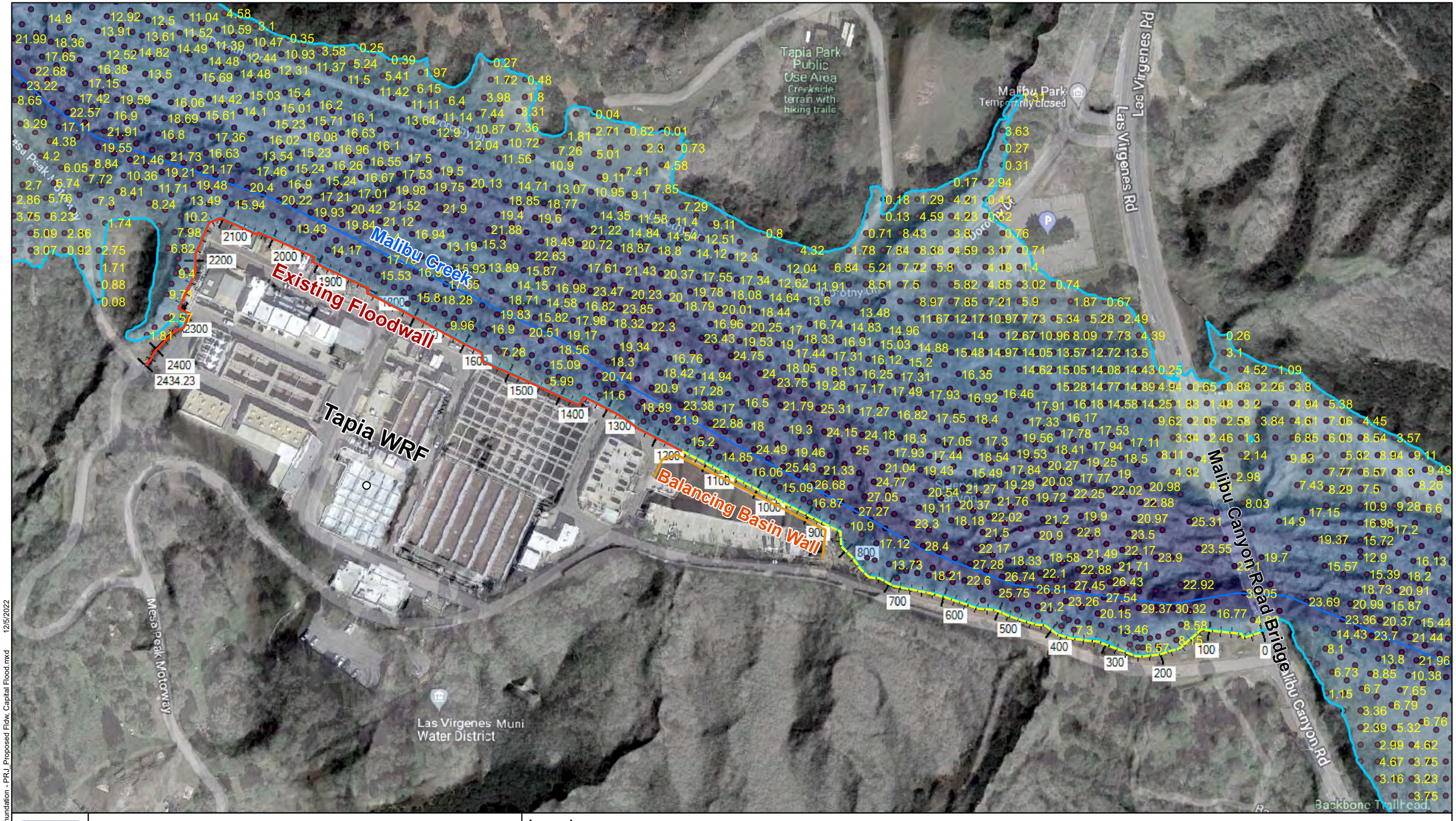
- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Proposed Floodwall
- Malibu Creek

0 100 200 Feet

N

Figure 25


HEC-RAS 2D Model-Simulated WSE Profiles along the Reach of Flood Interest under Proposed Bridge Condition vs Proposed Bridge + Recommended Improvements for the Capital Flood
Proposed Bridge Condition, Capital Flood
Proposed Bridge Condition + Improvements, Capital Flood
Floodwall Crest Elevation
Balancing Basin Wall Crest Elevation
Fence Toe Ground Elevation
Top of Bank Elevation along Access Road
Elevation (ft NAVD88)
493.00
488.00
483.00
478.00
473.00
468.00
0
500
1000
1500
2000
2500
Station along Tapia WRF Access Road, Fenceline, and Floodwall Starting from the U/S Face of Malibu Canyon Road Bridge (ft)
Power Station
Storage Building
Floodwall along Tributary
Raised Floodwall Height
Floodwall along Malibu Creek
New Floodwall Height
Balancing Basin Wall
Fence along Malibu Creek
Top of Bank along Malibu Creek
Bridge U/S Face
Gate
D/S End of Floodwall
U/S End of Main Channel Floodwall
U/S End of Tributary Floodwall



Tapia Water WRF Flood Protection Project

HEC-RAS Model Simulated Inundation
Proposed Improvement Condition, Capital Flood

Legend

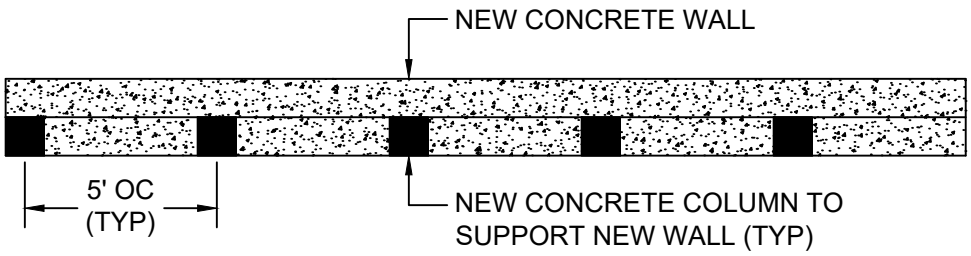
- Tapia WRF
- Existing Floodwall
- Balancing Basin Wall
- Proposed Floodwall
- Malibu Creek
- Inundation Extent - Proposed Improvement, Capital Flood
- Inundation Depth (ft)

N

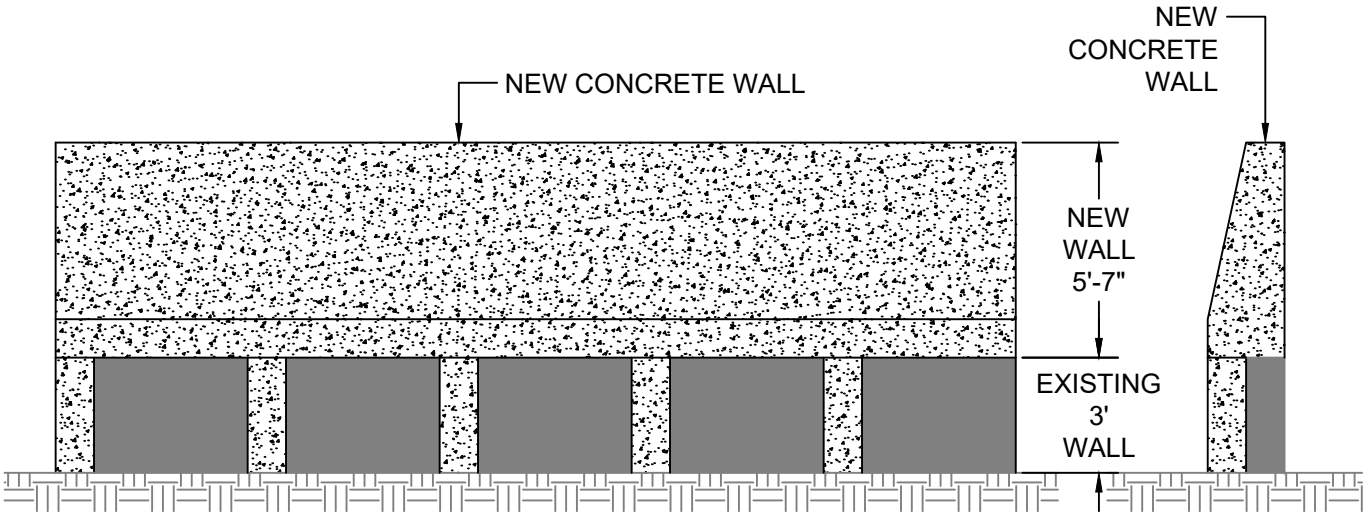
0 100 200 Feet

STETSON ENGINEERS INC.

C:\DATA\2852\GIS\Fig 6. Inundation - PRJ_Proposed Fldw, Capital Flood.mxd 12/5/2022



PLAN VIEW



ELEVATION VIEW

SECTION VIEW

F:\DATA\2852\AutoCAD\RasingWall.dwg

SCALE (Feet)

0 2.5 5 10

STETSON ENGINEERS INC.

DATE: MARCH 3, 2023 | JN: 2852

RAISING EXISTING DOWNSTREAM FLOODWALL

CONCEPT DESIGN

Appendices

Appendix A

FEMA FIS Discharge Table, WSE Profile, and Flood Map

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Future	0.2% Annual Chance
Chatsworth Shallow Flooding	Vicinity of Farrolone Avenue and Lassen Street	0.4	100	*	220	280	*	440
Chatsworth Shallow Flooding	Vicinity of Topanga Canyon Boulevard and Lassen Street	0.3	50	*	120	150	*	230
Chatsworth Shallow Flooding	Vicinity of Topanga Canyon Boulevard and Santa Susana Place	0.1	20	*	50	60	*	100
Cheseboro Creek	1,100 feet upstream of Driver Avenue	7.6	2,169	*	4,779	6,088	*	9,551
Cold Creek	At the intersection of Crater Camp Drive and Piuma Road	8.1	2,280	*	5,019	6,406	*	10,023
Cold Creek	Approximately 250 feet upstream of Malibu Meadows Road	7.8	2,280	*	5,041	6,432	*	10,066
Cold Creek	Approximately 300 feet downstream of Cam Colibri	5.7	1,734	*	3,826	4,881	*	7,640
Dark Canyon	Cross Section A	1.2	753	*	1,600	2,118	*	3,314
Dowd Canyon	At Calle Corona Extended	3.9	*	*	*	2,982	*	5,963
Dry Canyon	Approximately 2,000 feet upstream of San Francisquito Road	5.5	*	*	*	5,235	*	10,470
Dry Canyon	Cross Section C	1.1	527	*	1,104	1,484	*	2,323
Dry Canyon	Cross Section M	0.8	490	*	1,083	1,382	*	2,162
Dry Canyon	Cross Section T	0.4	242	*	534	681	*	1,065
Elsmere Canyon Creek	Approximately 358 feet east to Sierra Hwy	2.2	1,096	1,383	1,604	1,822	*	2,320
Elsmere Canyon Creek	Approximately 78 feet north to Wager Road	2.1	1,096	1,383	1,596	1,809	*	2,297

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Future	0.2% Annual Chance
Lockheed Drain Channel	Approximately 150 feet downstream of Hollywood Way	0.9	*	*	*	965	*	*
Lockheed Drain Channel	Approximately 450 feet upstream of Clybourn Avenue	0.4	278	*	*	448	*	*
Long Canyon	Approximately 1.4 miles upstream of confluence with Santa Clara River	*	60	*	180	260	*	580
Long Canyon	At confluence with Santa Clara River	*	40	*	110	170	*	380
Lopez Canyon Channel	Cross Section A	1.8	682	*	1,506	1,922	*	3,007
Los Angeles River	At Compton Creek	808	92,900	*	133,000	142,000	*	143,000
Los Angeles River	At Imperial Highway	752	89,400	*	126,000	140,000	*	156,000
Malibu Creek	Cross Section A	110	14,183	*	31,648	40,544	*	63,934
Malibu Lake	Malibu Lake	64.6	11,859	*	26,556	34,043	*	53,712
Medea Creek	Cross Section B	24.6	5,794	*	12,788	16,319	*	25,537
Medea Creek	Cross Section H	23.0	6,174	*	13,628	17,389	*	25,537
Medea Creek	Cross Section K	22.2	6,363	*	14,074	17,925	*	28,049
Medea Creek	Cross Section P	6.3	2,558	*	5,647	7,204	*	11,272
Medea Creek	Downstream of Ventura Highway	6.3	2,560	*	2,645	7,200	*	11,270
Medea Creek	Approximately 950 feet upstream of Canwood Street	[1]	*	*	*	6,720	*	*
Medea Creek	Approximately 1,100 feet upstream of Kanan Road	[1]	*	*	*	5,960	*	*
Medea Creek	At Thousand Oaks Boulevard	[1]	*	*	*	5,946	*	*
Medea Creek	Approximately 1,700 feet downstream of Laro Drive	4.1	*	*	*	5,320	*	*

ELEVATIONS DOWNSTREAM CONTROLLED BY FLOODING FROM PACIFIC OCEAN

ELEVATION IN FEET (NAVD)

30
20
10
0

1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700

STREAM DISTANCE IN FEET ABOVE PACIFIC COAST HIGHWAY

A

B

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FEMA Flow Location: Cross Section A

FLOOD PROFILES

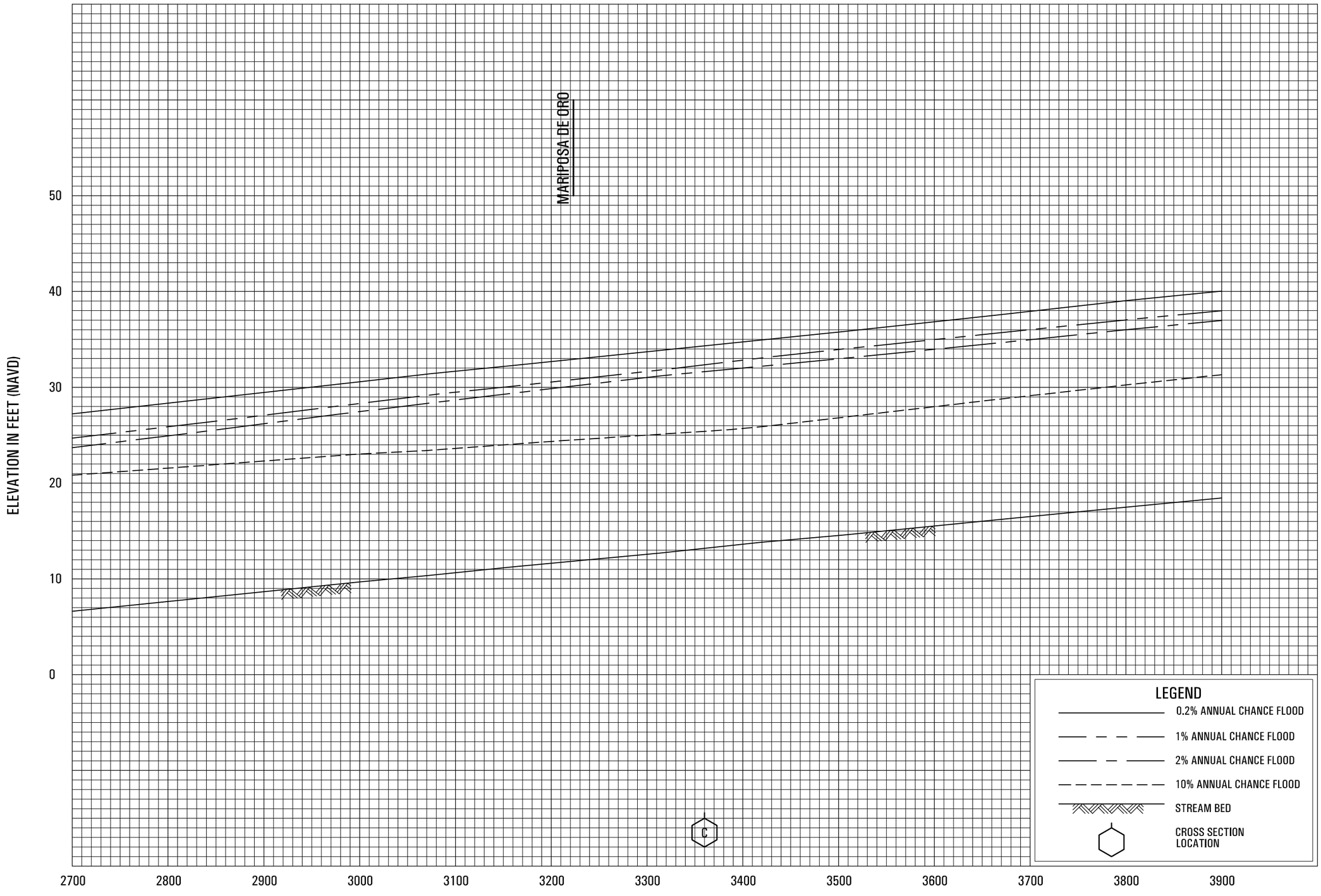
MALIBU CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LOS ANGELES COUNTY, CA

AND INCORPORATED AREAS

183P



FLOOD PROFILES

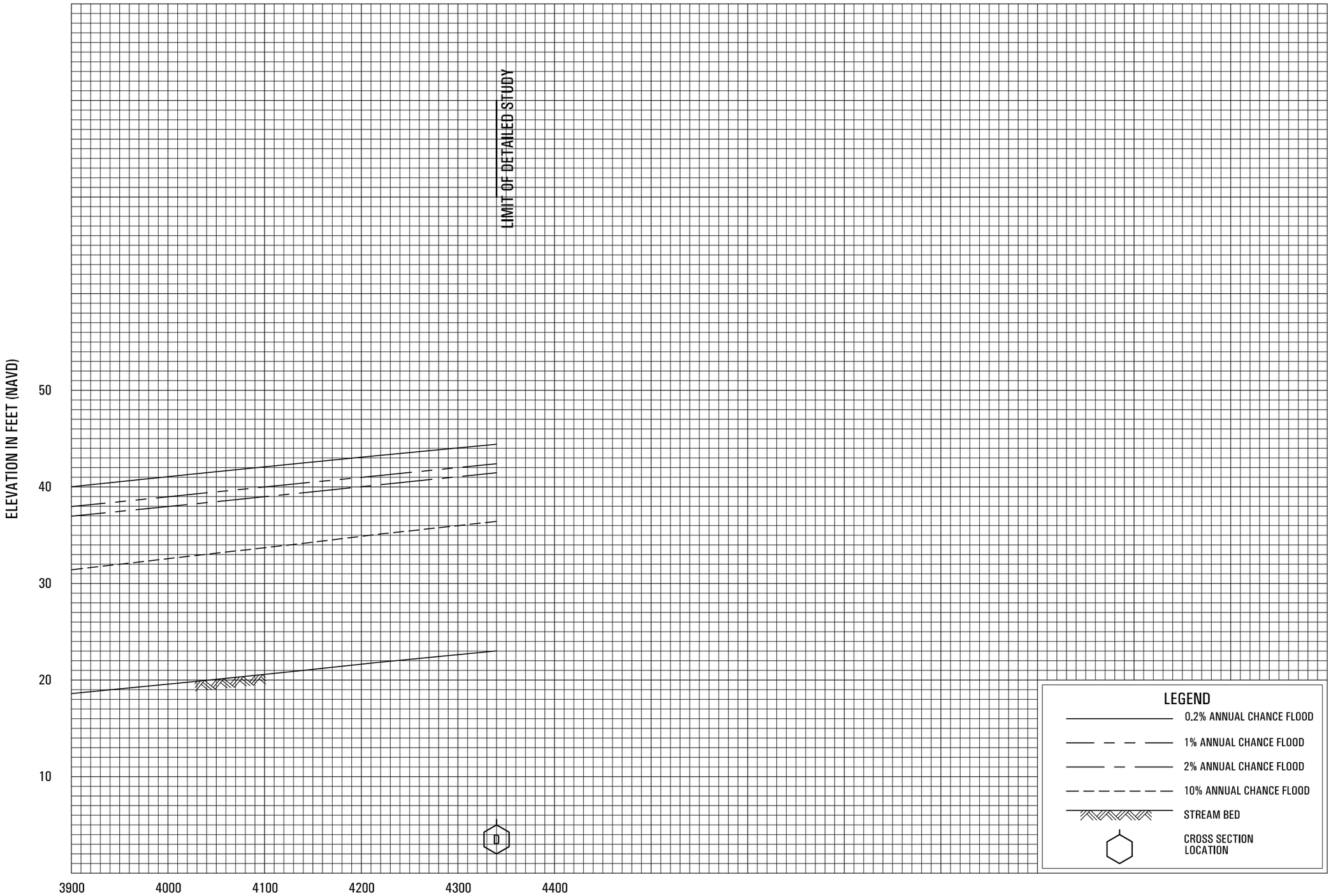
MALIBU CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LOS ANGELES COUNTY, CA

AND INCORPORATED AREAS

184P



FLOOD PROFILES

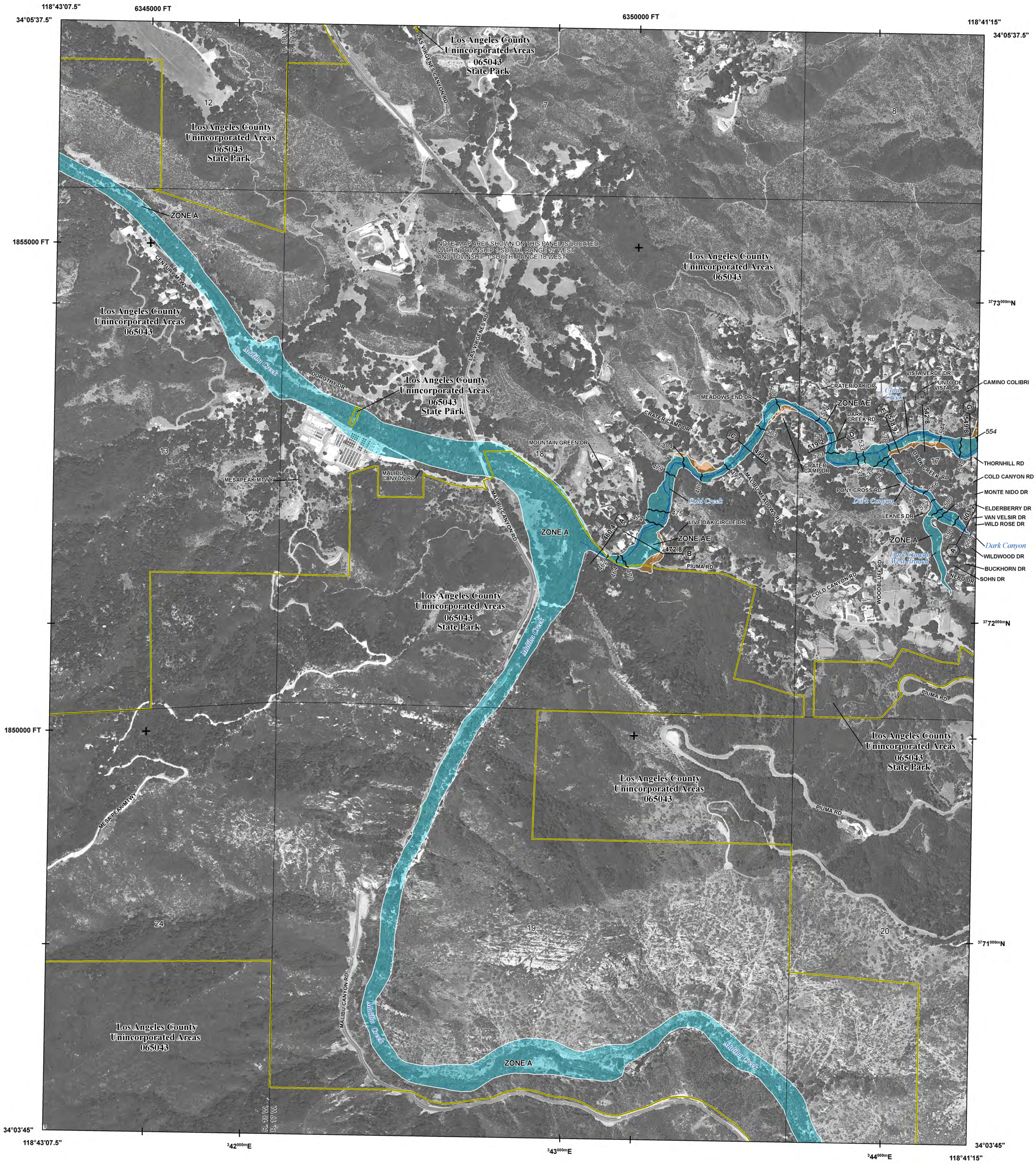
MALIBU CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LOS ANGELES COUNTY, CA

AND INCORPORATED AREAS

185P



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
OTHER AREAS OF FLOOD HAZARD	Area with Reduced Flood Risk due to Levee See Notes *Zone X*
OTHER AREAS	Areas of Minimal Flood Hazard *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert or Storm Sewer
	Levee, Dike or Floodwall
	Cross Sections with 1% Annual Chance (E, 18.2)
	Water Surface Elevation (BFE) 17.5
	Coastal Transect (8)
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE) 513
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from multiple sources. Vector base map data was provided by the Los Angeles County Department of Public Works and the Los Angeles County GIS Department. Digital ortho imagery was collected by the U.S. Department of Agriculture National Agriculture Imagery Program (NAIP). This imagery was flown in 2014 and was produced with a 1-meter ground sample distance.

SCALE

N

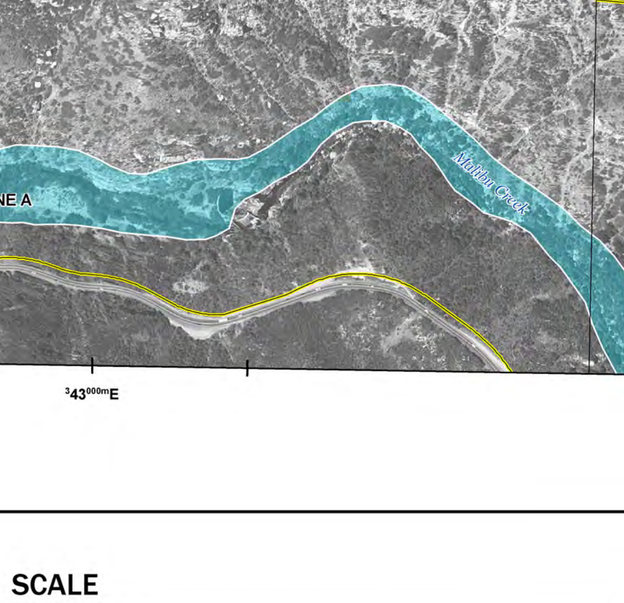
Map Projection:
Universal Transverse Mercator Zone 11N; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

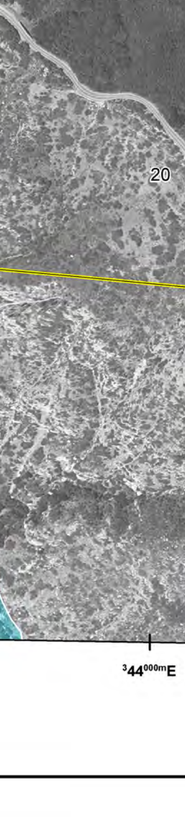
1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR





NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

LOS ANGELES COUNTY, CALIFORNIA

and Incorporated Areas

PANEL 1529 OF 2350

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	1529	G

VERSION NUMBER
2.3.3.2

MAP NUMBER
06037C1529G

MAP REVISED
DECEMBER 21, 2018

Appendix B

Subarea Delineation and Model Outputs for the Subareas Upstream of Confluence with Cold Creek in the LACPW 2007 Hydrologic Modeling for the Malibu Creek Watershed

Burned Flow rate = 41,656 cfs

ATTACHMENT A1

LEGEND

- Segment Boundary
- Subarea Boundary
- Collection Point
- 1A — Subarea Number
- Natural Watercourse

PREPARED BY R.ALIAGA	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE 12/31/07	MALIBU CREEK WATERSHED 50-YEAR FREQUENCY DESIGN STORM
SCALE 1" = 1500'	

1000 0 1000 2000 3000 Feet

N

File name: C:\MyFiles\My Projects\Malibu Creek Watershed\Malibu\50 Year Burn**Malibu_50yr_Burn**.lac
Run date: Thu Dec 20 09:05:02 2007

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	42.7	135.52	42.7	135.52	8.459	0	0	0.00000	0.00	0.00	0	231	9	8.96	0.01
1	2A	0.0	0.00	42.7	135.52	8.459	2	1165	0.08577	0.00	0.00	0	231	0	8.96	0.00
1	3A	46.7	132.36	89.4	262.53	17.925	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.02
1	4A	0.0	0.00	89.4	262.53	17.927	1	1304	0.10683	0.00	0.00	0	231	0	8.96	0.00
1	5A	44.7	150.96	134.1	378.33	26.784	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	6A	0.0	0.00	134.1	378.33	26.777	1	1001	0.14436	0.00	0.00	0	231	0	8.96	0.00
1	7A	51.4	145.41	185.5	503.69	36.950	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.01
1	8A	0.0	0.00	185.5	503.69	36.935	1	1212	0.15399	0.00	0.00	0	231	0	8.96	0.00
1	9A	33.2	120.39	218.7	562.09	43.513	0	0	0.00000	0.00	0.00	0	231	7	8.96	0.01
1	10A	0.0	0.00	218.7	562.09	43.490	1	1482	0.17934	0.00	0.00	0	231	0	8.96	0.00
1	11A	39.7	118.66	258.4	646.10	51.347	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	12A	18.7	63.13	277.1	689.88	55.050	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	13A	21.4	67.89	298.5	742.96	59.288	0	0	0.00000	0.00	0.00	0	231	9	8.96	0.01
1	14A	0.0	0.00	298.5	742.96	59.248	1	1329	0.15516	0.00	0.00	0	231	0	8.96	0.00
1	15A	26.6	79.46	325.1	795.52	64.509	0	0	0.00000	0.00	0.00	0	231	10	8.95	0.01
1	16B	24.4	82.36	24.4	82.36	4.831	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	17B	0.0	0.00	24.4	82.36	4.831	1	1157	0.15728	0.00	0.00	0	231	0	8.96	0.00
1	18B	30.1	89.28	54.5	162.22	10.734	0	0	0.00000	0.00	0.00	0	231	10	8.90	0.01
1	19AB	54.5	162.22	379.6	940.25	75.208	1	807	0.11343	0.00	0.00	0	231	0	8.90	0.00
1	20A	32.1	101.56	411.7	1002.82	81.542	0	0	0.00000	0.00	0.00	0	231	9	8.94	0.01
1	21A	0.0	0.00	411.7	1002.82	81.485	2	861	0.07728	0.00	0.00	0	231	0	8.94	0.00
1	22A	40.8	137.29	452.5	1053.18	89.532	0	0	0.00000	0.00	0.00	0	231	8	8.93	0.01
1	23A	0.0	0.00	452.5	1053.18	89.502	2	1196	0.09684	0.00	0.00	0	231	0	8.93	0.00
1	24A	30.0	89.65	482.5	1112.36	95.438	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	25C	34.7	125.86	34.7	125.86	6.877	0	0	0.00000	0.00	0.00	0	231	7	8.96	0.01
1	26C	0.0	0.00	34.7	125.86	6.885	1	1070	0.15751	0.00	0.00	0	231	0	8.96	0.00
1	27C	28.6	96.58	63.3	211.52	12.551	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	28C	0.0	0.00	63.3	211.52	12.552	1	222	0.15022	0.00	0.00	0	231	0	8.96	0.00
1	29C	51.1	152.77	114.4	359.23	22.669	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	30C	0.0	0.00	114.4	359.23	22.684	1	1471	0.15882	0.00	0.00	0	231	0	8.96	0.00
1	31C	33.2	93.90	147.6	438.32	29.253	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.01
1	32D	29.2	105.89	29.2	105.89	5.786	0	0	0.00000	0.00	0.00	0	231	7	8.96	0.01
1	33D	0.0	0.00	29.2	105.89	5.790	1	1956	0.17788	0.00	0.00	0	231	0	8.96	0.00
1	34D	29.3	92.96	58.5	176.28	11.592	0	0	0.00000	0.00	0.00	0	231	9	8.96	0.01
1	35CD	58.5	176.28	206.1	612.49	40.838	1	1219	0.11700	0.00	0.00	0	231	0	8.96	0.00
1	36C	22.0	65.75	228.1	660.47	45.191	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	37E	44.1	118.57	44.1	118.57	8.725	0	0	0.00000	0.00	0.00	0	231	12	8.96	0.01
1	38E	0.0	0.00	44.1	118.57	8.711	1	2302	0.17820	0.00	0.00	0	231	0	8.96	0.00
1	39E	47.2	141.08	91.3	231.58	18.052	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	40CE	91.3	231.58	319.4	887.83	63.215	1	1245	0.19190	0.00	0.00	0	231	0	8.96	0.00
1	41C	20.5	74.31	339.9	898.18	67.275	0	0	0.00000	0.00	0.00	0	231	7	8.96	0.01
1	42AC	339.9	898.18	822.4	2010.54	162.699	2	497	0.04878	0.00	0.00	0	231	0	8.96	0.00
1	43A	36.9	115.87	859.3	2081.54	169.909	0	0	0.00000	0.00	0.00	0	231	9	8.88	0.01
1	44A	0.0	0.00	859.3	2081.54	169.793	2	1893	0.05831	0.00	0.00	0	231	0	8.88	0.00
1	45A	39.9	106.42	899.2	2142.52	177.611	0	0	0.00000	0.00	0.00	0	231	12	8.90	0.01
1	46F	29.3	90.55	29.3	90.55	7.047	0	0	0.00000	0.00	0.00	0	228	9	8.69	0.05
1	47F	36.6	108.17	65.9	198.72	15.855	0	0	0.00000	0.00	0.00	0	228	10	8.81	0.04
1	48F	0.0	0.00	65.9	198.72	15.864	2	920	0.02843	0.00	0.00	0	228	0	8.81	0.00
1	49F	13.6	52.94	79.5	237.70	18.948	0	0	0.00000	0.00	0.00	0	228	6	8.77	0.01
1	**50G**	**41630.0**	**33022.50**	**41630.0**	**33022.50**	**11312.420**	**2**	**539**	**0.04187**	**0.00**	**0.00**	**0**	**228**	**0**	**8.77**	**0.00**
1	51G	34.7	105.41	41664.7	33023.53	11320.332	0	0	0.00000	0.00	0.00	0	228	9	8.59	0.03
1	52G	0.0	0.00	41664.7	33023.53	11317.182	2	454	0.02005	0.00	0.00	0	228	0	8.59	0.00
1	53G	25.5	83.00	41690.2	33024.93	11322.832	0	0	0.00000	0.00	0.00	0	228	8	8.64	0.01
1	54G	0.0	0.00	41690.2	33024.93	11307.959	2	922	0.00381	0.00	0.00	0	228	0	8.64	0.00
1	55G	32.0	113.38	41722.2	33022.51	11315.138	0	0	0.00000	0.00	0.00	0	228	7	8.71	0.01
1	56FG	41722.2	33022.51	41801.7	33032.54	11322.439	2	893	0.00593	0.00	0.00	0	228	0	8.71	0.00
1	57F	25.0	77.83	41826.7	33028.01	11328.118	0	0	0.00000	0.00	0.00	0	228	9	8.79	0.01
1	58AF	41826.7	33028.01	42725.9	33138.95	11495.926	2	1081	0.01248	0.00	0.00	0	228	0	8.79	0.00
1	59A	28.8	89.64	42754.7	33139.95	11502.466	0	0	0.00000	0.00	0.00	0	228	9	8.79	0.01
1	60H	23.4	69.94	23.4	69.94	4.631	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	61H	26.1	82.79	49.5	152.73	9.797	0	0	0.00000	0.00	0.00	0	231	9	8.96	0.01
1	62H	0.0	0.00	49.5	152.73	9.796	1	812	0.16247	0.00	0.00	0	231	0	8.96	0.00
1	63H	11.2	40.23	60.7	187.51	11.988	0	0	0.00000	0.00	0.00	0	231	7	8.89	0.01
1	64I	47.1	159.02	47.1	159.02	9.329	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	65I	0.0	0.00	47.1	159.02	9.330	1	835	0.13953	0.00	0.00	0	231	0	8.96	0.00
1	66I	33.1	98.94	80.2	251.79	15.882	0	0	0.00000	0.00	0.00	0	231	10	8.96	0.01
1	67I	21.2	71.57	101.4	321.57	20.081	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	68I	0.0	0.00	101.4	321.57	20.062	1	1968	0.18315	0.00	0.00	0	231	0	8.96	0.00
1	69I	45.7	129.22	147.1	425.72	29.102	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.01
1	70J	30.1	101.62	30.1	101.62	5.962	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	71J	0.0	0.00	30.1	101.62	5.960	1	1470	0.17958	0.00	0.00	0	231	0	8.96	0.00
1	72J	35.6	112.93	65.7	198.60	13.008	0	0	0.00000	0.00	0.00	0	231	9	8.96	0.01
1	73IJ	65.7	198.60	212.8	617.54	42.116	1	1608	0.14829	0.00	0.00	0	231	0	8.96	0.00
1	74I	36.9	110.21	249.7	699.31	49.413	0	0	0.00000	0.00	0.00	0	231	10	8.95	0.01
1	75HI	249.7	699.31	310.4	857.53	61.374	2	1482	0.06557	0.00	0.00	0	231	0	8.95	0.00
1	76H	25.8	72.23	336.2	908.23	66.416	0	0	0.00000	0.00	0.00	0	231	11	8.88	0.01
1	77AH	336.2	908.23	43090.9	33175.45	11566.182	2	369	0.01918	0.00	0.00	0	231	0	8.88	0.00
1	78A	6.6	28.44	43097.5	33174.12	11567.683	0	0	0.00000	0.00	0.00	0	228	5	8.79	0.01
1	79K	41.6	117.62	41.6	117.62	8.229	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.01
1	80K	20.1	56.83	61.7	174.46	12.204	0	0	0.00000	0.00	0.00	0	231	11	8.96	0.01

1	81K	0.0	0.00	61.7	174.46	12.205	1	1677	0.18314	0.00	0.00	0	231	0	8.96	0.00
1	82K	38.5	121.44	100.2	277.22	19.771	0	0	0.00000	0.00	0.00	0	231	9	8.91	0.01
1	83K	0.0	0.00	100.2	277.22	19.764	2	1995	0.04642	0.00	0.00	0	231	0	8.91	0.00
1	84K	47.7	125.93	147.9	373.92	28.994	0	0	0.00000	0.00	0.00	0	231	12	8.83	0.01
1	85K	44.6	125.39	192.5	483.73	37.755	0	0	0.00000	0.00	0.00	0	231	11	8.91	0.01
1	86K	0.0	0.00	192.5	483.73	37.757	2	253	0.06779	0.00	0.00	0	231	0	8.91	0.00
1	87K	1.9	8.25	194.4	484.63	38.193	0	0	0.00000	0.00	0.00	0	228	5	8.84	0.01
1	88AK	194.4	484.63	43291.9	33193.56	11591.545	2	1340	0.00922	0.00	0.00	0	228	0	8.84	0.00
1	89A	35.9	111.05	43327.8	33191.25	11599.637	0	0	0.00000	0.00	0.00	0	228	9	8.74	0.01
1	90A	0.0	0.00	43327.8	33191.25	11596.029	2	756	0.04632	0.00	0.00	0	228	0	8.74	0.00
1	91A	48.9	141.39	43376.7	33192.68	11606.931	0	0	0.00000	0.00	0.00	0	228	10	8.68	0.01
1	92A	0.0	0.00	43376.7	33192.68	11603.544	2	723	0.04832	0.00	0.00	0	228	0	8.68	0.00
1	93A	45.8	123.99	43422.5	33196.29	11613.596	0	0	0.00000	0.00	0.00	0	228	11	8.59	0.01
1	94L	40.8	120.86	40.8	120.86	8.870	0	0	0.00000	0.00	0.00	0	228	9	8.42	0.02
1	95L	0.0	0.00	40.8	120.86	8.875	2	968	0.05570	0.00	0.00	0	228	0	8.42	0.00
1	96L	31.3	87.76	72.1	203.22	15.592	0	0	0.00000	0.00	0.00	0	228	10	8.46	0.01
1	97M	37.8	134.59	37.8	134.59	12.563	0	0	0.00000	0.00	0.00	0	236	8	8.28	0.01
1	98M	0.0	0.00	37.8	134.59	12.570	2	1450	0.08493	0.00	0.00	0	236	0	8.28	0.00
1	99M	44.1	158.00	81.9	280.13	27.369	0	0	0.00000	0.00	0.00	0	236	8	8.34	0.01
1	100N	46.3	163.83	46.3	163.83	15.239	0	0	0.00000	0.00	0.00	0	236	8	8.23	0.01
1	101N	0.0	0.00	46.3	163.83	15.248	2	1200	0.05553	0.00	0.00	0	236	0	8.23	0.00
1	102N	53.8	169.85	100.1	324.69	32.668	0	0	0.00000	0.00	0.00	0	236	10	8.14	0.01
1	103O	50.3	165.33	50.3	165.33	16.057	0	0	0.00000	0.00	0.00	0	236	9	8.07	0.01
1	104O	34.6	115.26	84.9	280.58	27.334	0	0	0.00000	0.00	0.00	0	236	9	8.18	0.01
1	105O	0.0	0.00	84.9	280.58	27.329	2	602	0.02760	0.00	0.00	0	236	0	8.18	0.00
1	106O	11.0	48.14	95.9	321.34	30.921	0	0	0.00000	0.00	0.00	0	236	5	8.15	0.02
1	107NO	95.9	321.34	196.0	643.14	63.576	2	1500	0.09719	0.00	0.00	0	236	0	8.15	0.00
1	108N	47.2	167.24	243.2	787.43	79.279	0	0	0.00000	0.00	0.00	0	236	8	8.24	0.02
1	109MN	243.2	787.43	325.1	1067.56	106.656	2	643	0.00650	0.00	0.00	0	236	0	8.24	0.00
1	110M	50.2	178.75	375.3	1199.21	123.343	0	0	0.00000	0.00	0.00	0	236	8	8.29	0.01
1	111M	0.0	0.00	375.3	1199.21	123.338	2	1035	0.06258	0.00	0.00	0	236	0	8.29	0.00
1	112M	29.9	113.82	405.2	1263.45	133.354	0	0	0.00000	0.00	0.00	0	236	7	8.33	0.01
1	113M	0.0	0.00	405.2	1263.45	133.335	2	1235	0.01280	0.00	0.00	0	236	0	8.33	0.00
1	114M	33.9	115.18	439.1	1299.68	144.730	0	0	0.00000	0.00	0.00	0	236	9	8.34	0.01
1	115LM	439.1	1299.68	511.2	1467.96	160.286	2	1584	0.09063	0.00	0.00	0	236	0	8.34	0.00
1	116L	56.9	196.21	568.1	1569.28	179.856	0	0	0.00000	0.00	0.00	0	236	9	8.47	0.01
1	117AL	568.1	1569.28	43990.6	33321.16	11773.963	2	1423	0.00584	0.00	0.00	0	236	0	8.47	0.00
1	118A	31.1	100.15	44021.7	33318.44	11780.764	0	0	0.00000	0.00	0.00	0	228	8	8.57	0.01
1	119P	31.0	117.26	31.0	117.26	10.283	0	0	0.00000	0.00	0.00	0	236	7	8.28	0.01
1	120P	0.0	0.00	31.0	117.26	10.275	1	1486	0.12680	0.00	0.00	0	236	0	8.28	0.00
1	121P	38.9	140.50	69.9	234.77	23.494	0	0	0.00000	0.00	0.00	0	236	8	8.40	0.01
1	122P	0.0	0.00	69.9	234.77	23.489	2	1231	0.08004	0.00	0.00	0	236	0	8.40	0.00
1	123P	47.7	137.07	117.6	363.78	39.679	0	0	0.00000	0.00	0.00	0	236	13	8.39	0.01
1	124AP	117.6	363.78	44139.3	33342.48	11790.292	2	1512	0.00282	0.00	0.00	0	236	0	8.39	0.00
1	125A	52.3	148.45	44191.6	33334.55	11801.688	0	0	0.00000	0.00	0.00	0	228	10	8.55	0.01
1	126A	0.0	0.00	44191.6	33334.55	11794.953	2	1362	0.04685	0.00	0.00	0	228	0	8.55	0.00
1	127A	49.4	161.45	44241.0	33335.95	11805.953	0	0	0.00000	0.00	0.00	0	228	8	8.67	0.01
1	128A	0.0	0.00	44241.0	33335.95	11801.017	2	892	0.03761	0.00	0.00	0	228	0	8.67	0.00
1	129A	22.1	72.37	44263.1	33334.76	11805.950	0	0	0.00000	0.00	0.00	0	228	8	8.68	0.01
1	130Q	38.7	130.23	38.7	130.23	7.633	0	0	0.00000	0.00	0.00	0	231	8	8.93	0.01
1	131Q	0.0	0.00	38.7	130.23	7.625	1	1823	0.19033	0.00	0.00	0	231	0	8.93	0.00
1	132Q	49.9	133.21	88.6	247.27	17.413	0	0	0.00000	0.00	0.00	0	231	12	8.91	0.01
1	133R	23.2	78.32	23.2	78.32	4.594	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	134R	0.0	0.00	23.2	78.32	4.597	1	1734	0.20396	0.00	0.00	0	231	0	8.96	0.00
1	135R	47.6	160.66	70.8	216.27	14.022	0	0	0.00000	0.00	0.00	0	231	8	8.96	0.01
1	136R	0.0	0.00	70.8	216.27	14.027	1	1518	0.19846	0.00	0.00	0	231	0	8.96	0.00
1	137R	45.8	136.45	116.6	334.23	23.056	0	0	0.00000	0.00	0.00	0	231	10	8.93	0.01
1	138QR	116.6	334.23	205.2	581.50	40.459	1	1208	0.12694	0.00	0.00	0	231	0	8.93	0.00
1	139Q	40.6	108.19	245.8	673.98	48.404	0	0	0.00000	0.00	0.00	0	231	12	8.89	0.01
1	140S	45.9	126.87	45.9	126.87	8.833	0	0	0.00000	0.00	0.00	0	231	11	8.79	0.01
1	141S	0.0	0.00	45.9	126.87	8.840	1	993	0.14708	0.00	0.00	0	231	0	8.79	0.00
1	142S	36.2	127.59	82.1	240.85	15.757	0	0	0.00000	0.00	0.00	0	231	7	8.74	0.01
1	143S	0.0	0.00	82.1	240.85	15.753	1	763	0.14095	0.00	0.00	0	231	0	8.74	0.00
1	144S	38.8	136.42	120.9	359.85	23.144	0	0	0.00000	0.00	0.00	0	231	7	8.72	0.01
1	145S	0.0	0.00	120.9	359.85	23.139	1	875	0.16254	0.00	0.00	0	231	0	8.72	0.00
1	146S	31.8	97.53	152.7	443.99	29.176	0	0	0.00000	0.00	0.00	0	231	9	8.71	0.01
1	147S	0.0	0.00	152.7	443.99	29.168	2	1013	0.06508	0.00	0.00	0	231	0	8.71	0.00
1	148S	32.0	98.59	184.7	523.36	35.277	0	0	0.00000	0.00	0.00	0	231	9	8.74	0.01
1	149QS	184.7	523.36	430.5	1194.35	83.657	1	815	0.10897	0.00	0.00	0	231	0	8.74	0.00
1	150Q	22.1	68.41	452.6	1239.73	87.899	0	0	0.00000	0.00	0.00	0	231	9	8.77	0.01
1	151Q	41.3	109.06	493.9	1338.31	95.893	0	0	0.00000	0.00	0.00	0	231	12	8.83	0.01
1	152Q	0.0	0.00	493.9	1338.31	95.865	1	768	0.10459	0.00	0.00	0	231	0	8.83	0.00
1	153Q	10.3	39.35	504.2	1335.37	97.818	0	0	0.00000	0.00	0.00	0	231	6	8.70	0.01
1	154AQ	504.2	1335.37	44767.3	33382.89	11898.496	2	769	0.02468	0.00	0.00	0	231	0	8.70	0.00
1	155A	50.7	137.73	44818.0	33387.66	11909.672	0	0	0.00000	0.00	0.00	0	228	11	8.62	0.01
1	156A	0.0	0.00	44818.0	33387.66	11905.439	2	997	0.06462	0.00	0.00	0	228	0	8.62	0.00
1	157A	51.3	154.70	44869.3	33390.74	11916.645	0	0	0.00000	0.00	0.00	0	228	9	8.56	0.01
1	158A	0.0	0.00	44869.3	33390.74	11893.093	2	931	0.00188	0.00	0.00	0	228	0	8.56	0.00
1	159A	26.2	96.05	44895.5	33384.71	11902.205	0	0	0.00000	0.00	0.00	0	236	8	8.53	0.01
1	160T	27.3	103.64	27.3	103.64	9.107	0	0	0.00000	0.00	0.00	0	236	7	8.31	0.01
1	161T	0.0	0.00	27.3	103.64	9.107	1	1322	0.18209	0.00	0.00	0	236	0	8.31	0.00
1	162T	40.9	156.87	68.2	242.17	22.970	0	0	0.00000	0.00	0.00	0	236	7	8.39	0.01
1	163T	0.0	0.00	68.2	242.17	22.968	2	1825	0.06041	0.00	0.00	0	236	0	8.39	0.00
1	164T	44.5	154.00	112.7	370.03	38.358	0	0	0.00000	0.00	0.00	0	236	9	8.50	0.01
1	165AT	112.7	370.03	45008.2	33406.24	11937.757	2	553	0.04670	0.00	0.00	0	236	0	8.50	0.00
1	166A	32.2	117.36	45040.4	33411.62	11948.855	0	0	0.00000	0.00	0.00	0	236	8	8.48	0.01
1	167A	0.0	0.00	45040.4	33411.62	11936.771	2	453	0.00172	0.00	0.00	0	236	0	8.48	0.00
1	168A	40.7	147.19	45081.1	33412.08	11950.629	0	0	0.00000	0.00	0.00	0	236	8	8.41	0.01
1	169A	0.0	0.00	45081.1	33412.08	11936.443	2	726	0.00326	0.00	0.00	0	236	0	8.41	0.00
1	170A	21.6	83.18	45102.7	33409.67	11943.810	0	0	0.00000	0.00	0.00	0	236	7	8.43	0.01
1	171A	53.3	165.44	45156.0	33419.02	11961.841	0	0	0.00000	0.00	0.00	0	236	11	8.38	0.01

1	172A	0.0	0.00	45156.0	33419.02	11953.213	2	729	0.00895	0.00	0.00	0	236	0	8.38	0.00
1	173A	30.5	110.67	45186.5	33423.28	11963.652	0	0	0.00000	0.00	0.00	0	236	8	8.44	0.01
1	**174A**	**15572.0**	**16710.10**	**60758.5**	**41577.15**	**15656.615**	**2**	**1385**	**0.00118**	**0.00**	**0.00**	**0**	**236**	**0**	**8.44**	**0.00**
1	175A	44.7	125.61	60803.2	41555.30	15666.234	0	0	0.00000	0.00	0.00	0	228	10	8.48	0.01
1	176A	0.0	0.00	60803.2	41555.30	15658.973	2	1097	0.03585	0.00	0.00	0	228	0	8.48	0.00
1	177A	53.3	135.37	60856.5	41559.86	15670.514	0	0	0.00000	0.00	0.00	0	228	12	8.52	0.01
1	178U	34.9	121.73	34.9	121.73	7.682	0	0	0.00000	0.00	0.00	0	228	7	8.60	0.01
1	179U	0.0	0.00	34.9	121.73	7.685	1	1375	0.21343	0.00	0.00	0	228	0	8.60	0.00
1	180U	39.7	127.33	74.6	233.72	16.324	0	0	0.00000	0.00	0.00	0	228	8	8.54	0.01
1	181AU	74.6	233.72	60931.1	41567.26	15678.698	2	991	0.02346	0.00	0.00	0	228	0	8.54	0.00
1	182A	35.1	120.26	60966.2	41565.75	15686.259	0	0	0.00000	0.00	0.00	0	228	7	8.48	0.01
1	183A	0.0	0.00	60966.2	41565.75	15670.611	2	993	0.00648	0.00	0.00	0	228	0	8.48	0.00
1	184A	48.0	142.57	61014.2	41566.61	15680.902	0	0	0.00000	0.00	0.00	0	228	9	8.45	0.01
1	185A	0.0	0.00	61014.2	41566.61	15668.360	2	927	0.00888	0.00	0.00	0	228	0	8.45	0.00
1	186A	34.2	101.10	61048.4	41564.24	15675.904	0	0	0.00000	0.00	0.00	0	228	9	8.40	0.03
1	187V	33.1	93.85	33.1	93.85	7.203	0	0	0.00000	0.00	0.00	0	228	10	8.54	0.01
1	188V	14.0	48.21	47.1	141.95	10.237	0	0	0.00000	0.00	0.00	0	228	7	8.51	0.01
1	189V	0.0	0.00	47.1	141.95	10.237	1	1559	0.15619	0.00	0.00	0	228	0	8.51	0.00
1	190V	17.2	54.38	64.3	179.92	13.980	0	0	0.00000	0.00	0.00	0	228	8	8.43	0.02
1	191AV	64.3	179.92	61112.7	41570.75	15674.927	2	1287	0.01220	0.00	0.00	0	228	0	8.43	0.00
1	192A	28.9	75.63	61141.6	41566.73	15681.233	0	0	0.00000	0.00	0.00	0	228	11	8.34	0.03
1	193W	42.7	99.01	42.7	99.01	9.097	0	0	0.00000	0.00	0.00	0	28	12	8.62	0.18
1	194W	29.0	85.87	71.7	184.88	15.400	0	0	0.00000	0.00	0.00	0	228	9	8.42	0.02
1	195W	0.0	0.00	71.7	184.88	15.396	2	1568	0.03768	0.00	0.00	0	228	0	8.42	0.00
1	196W	31.8	78.09	103.5	247.77	22.135	0	0	0.00000	0.00	0.00	0	228	12	8.29	0.02
1	197AW	103.5	247.77	61245.1	41576.80	15701.777	2	235	0.03582	0.00	0.00	0	228	0	8.29	0.00
1	198A	2.0	8.08	61247.1	41576.97	15702.196	0	0	0.00000	0.00	0.00	0	228	5	8.31	0.01
1	199X	47.7	116.66	47.7	116.66	8.409	0	0	0.00000	0.00	0.00	0	231	12	8.28	0.01
1	200X	0.0	0.00	47.7	116.66	8.393	1	2490	0.19618	0.00	0.00	0	231	0	8.28	0.00
1	201X	43.0	100.48	90.7	198.70	17.327	0	0	0.00000	0.00	0.00	0	228	13	8.29	0.01
1	202X	52.4	127.04	143.1	316.41	28.081	0	0	0.00000	0.00	0.00	0	228	12	8.22	0.01
1	203X	0.0	0.00	143.1	316.41	28.080	1	1293	0.10150	0.00	0.00	0	228	0	8.22	0.00
1	204X	19.0	55.31	162.1	352.21	32.123	0	0	0.00000	0.00	0.00	0	228	9	8.30	0.02
1	205Y	26.7	66.60	26.7	66.60	4.821	0	0	0.00000	0.00	0.00	0	231	12	8.42	0.01
1	206Y	43.9	106.31	70.6	172.84	12.898	0	0	0.00000	0.00	0.00	0	231	13	8.53	0.01
1	207Y	0.0	0.00	70.6	172.84	12.900	1	1035	0.20651	0.00	0.00	0	231	0	8.53	0.00
1	208Y	39.9	110.00	110.5	277.87	20.064	0	0	0.00000	0.00	0.00	0	231	10	8.39	0.01
1	209Y	38.1	93.22	148.6	370.30	27.163	0	0	0.00000	0.00	0.00	0	231	13	8.60	0.01
1	210Y	0.0	0.00	148.6	370.30	27.120	1	2048	0.12568	0.00	0.00	0	231	0	8.60	0.00
1	211Y	27.5	68.24	176.1	416.07	32.917	0	0	0.00000	0.00	0.00	0	228	12	8.37	0.01
1	212Z	36.2	118.10	36.2	118.10	6.862	0	0	0.00000	0.00	0.00	0	231	8	8.70	0.01
1	213Z	0.0	0.00	36.2	118.10	6.862	1	1836	0.19599	0.00	0.00	0	231	0	8.70	0.00
1	214Z	38.7	108.76	74.9	208.63	13.973	0	0	0.00000	0.00	0.00	0	231	10	8.52	0.01
1	215Z	0.0	0.00	74.9	208.63	13.959	1	1742	0.11545	0.00	0.00	0	231	0	8.52	0.00
1	216Z	34.0	94.47	108.9	269.26	21.173	0	0	0.00000	0.00	0.00	0	228	10	8.40	0.01
1	217YZ	108.9	269.26	285.0	685.33	54.089	2	497	0.07476	0.00	0.00	0	228	0	8.40	0.00
1	218Y	10.8	33.75	295.8	702.18	56.487	0	0	0.00000	0.00	0.00	0	228	8	8.32	0.04
1	219XY	295.8	702.18	457.9	1054.40	88.612	2	117	0.03379	0.00	0.00	0	228	0	8.32	0.00
1	220X	0.3	1.22	458.2	1052.25	88.675	0	0	0.00000	0.00	0.00	0	228	5	8.34	0.01
1	221AX	458.2	1052.25	61705.3	41618.81	15764.839	2	1100	0.00302	0.00	0.00	0	228	0	8.34	0.00
1	222A	33.4	96.37	61738.7	41616.88	15773.429	0	0	0.00000	0.00	0.00	0	28	8	8.23	0.29
1	223A	0.0	0.00	61738.7	41616.88	15768.107	2	331	0.00654	0.00	0.00	0	28	0	8.23	0.00
1	224A	30.9	75.24	61769.6	41618.39	15774.925	0	0	0.00000	0.00	0.00	0	228	12	8.20	0.05
1	225B	41.3	114.61	41.3	114.61	8.902	0	0	0.00000	0.00	0.00	0	228	10	8.38	0.02
1	226B	0.0	0.00	41.3	114.61	8.902	2	904	0.06105	0.00	0.00	0	228	0	8.38	0.00
1	227B	30.0	72.91	71.3	184.06	14.057	0	0	0.00000	0.00	0.00	0	235	11	8.29	0.06
1	228B	0.0	0.00	71.3	184.06	14.053	2	668	0.04588	0.00	0.00	0	235	0	8.29	0.00
1	229B	38.0	98.90	109.3	276.49	22.293	0	0	0.00000	0.00	0.00	0	228	11	8.31	0.03
1	230B	0.0	0.00	109.3	276.49	22.288	1	1478	0.10142	0.00	0.00	0	228	0	8.31	0.00
1	231B	41.9	97.39	151.2	352.93	31.090	0	0	0.00000	0.00	0.00	0	228	13	8.24	0.02
1	232B	25.4	68.67	176.6	409.89	36.298	0	0	0.00000	0.00	0.00	0	228	10	8.21	0.01
1	233B	0.0	0.00	176.6	409.89	36.290	2	739	0.03037	0.00	0.00	0	228	0	8.21	0.00
1	234B	34.4	82.93	211.0	476.83	43.304	0	0	0.00000	0.00	0.00	0	228	12	8.18	0.01
1	235B	40.2	88.66	251.2	557.12	52.080	0	0	0.00000	0.00	0.00	0	228	14	8.14	0.05
1	236B	0.0	0.00	251.2	557.12	52.077	2	606	0.04613	0.00	0.00	0	228	0	8.14	0.00
1	237B	37.5	87.16	288.7	631.56	60.088	0	0	0.00000	0.00	0.00	0	228	13	8.23	0.03
1	238B	0.0	0.00	288.7	631.56	59.986	2	739	0.00100	0.00	0.00	0	228	0	8.23	0.00
1	239B	36.9	99.09	325.6	597.72	67.488	0	0	0.00000	0.00	0.00	0	228	10	8.16	0.01
1	240B	0.0	0.00	325.6	597.72	67.415	2	1803	0.03761	0.00	0.00	0	228	0	8.16	0.00
1	241B	47.2	92.42	372.8	643.09	77.162	0	0	0.00000	0.00	0.00	0	228	17	8.16	0.02
1	242AB	372.8	643.09	62142.4	41665.85	15839.179	2	582	0.00349	0.00	0.00	0	228	0	8.16	0.00
1	243A	45.9	109.91	62188.3	41664.40	15848.465	0	0	0.00000	0.00	0.00	0	228	12	8.14	0.01
1	244A	0.0	0.00	62188.3	41664.40	15811.342	2	1400	0.00250	0.00	0.00	0	228	0	8.14	0.00
1	245A	47.8	114.31	62236.1	41655.90	15821.508	0	0	0.00000	0.00	0.00	0	228	12	8.09	0.04
1	246A	0.0	0.00	62236.1	41655.90	15821.508	0	0	0.00000	0.00	0.00	0	228	0	8.09	0.00

Normal End of MODRAT

Appendix C

9/14/2022 Field Survey Data Points and Results

NOTES:

THE ELEVATIONS SHOWN ON THIS SET OF FIGURES ARE BASED ON THE COUNTY BENCHMARK BM 57-13 SHOWN.

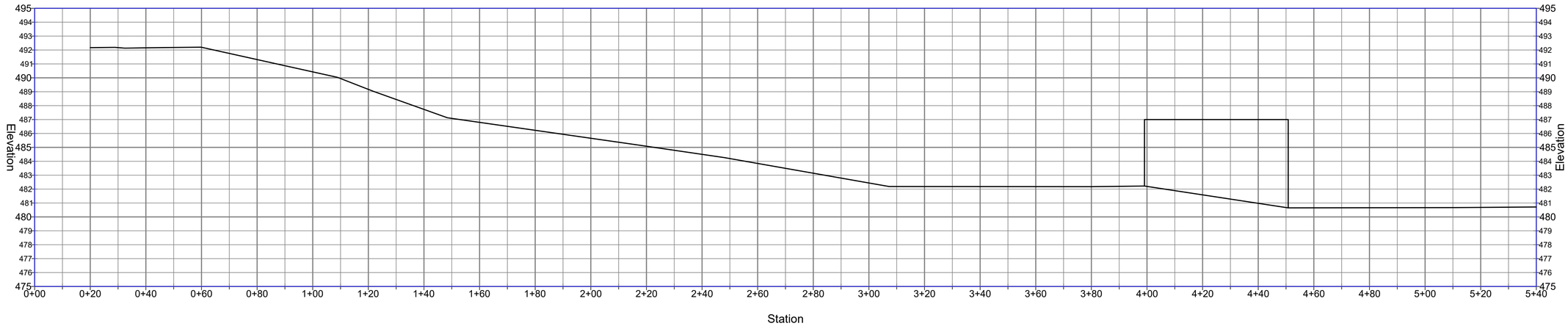
- DOWNLOADED FROM THE WEBSITE: Bench Mark Retrieval System (lacounty.gov)
- ELEVATION: 473.138 (NAVD88 DATUM)
- DESCRIPTION: CSBM MON IN CONC ABUT @ NW COR BRIDGE 15' W/O C/L MALIBU CYN RD & 180' S/O C/L PIUMA RD MKD (BM 57-13 1960)

STETSON ENGINEERS INC.

DATE: SEPTEMBER 19, 2022	JN: 2852

OVERVIEW MAP

F:\DATA\2852\AutoCAD\Survey\22-9-14.dwg



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STETSON ENGINEERS INC.

DATE: SEPTEMBER 19, 2022 | JN: 2852

PLAN VIEW AND WALL PROFILE (STA 0+00 TO 5+40)