Whale Rock Commission
AGENDA

Thursday, May 8, 2025, 10:30 a.m.

Council Hearing Room, 990 Palm Street, San Luis Obispo

The Whale Rock Commission holds in-person meetings. Zoom participation will not be supported. Attendees of City Council or Advisory Body meetings are eligible to receive one hour of complimentary parking; restrictions apply, visit Parking for Public Meetings for more details.

INSTRUCTIONS FOR PUBLIC COMMENT:

Public Comment prior to the meeting (must be received 3 hours in advance of the meeting):

Mail - Delivered by the U.S. Postal Service. Address letters to the City Clerk's Office at 990 Palm Street, San Luis Obispo, California, 93401.

Email - Submit Public Comments via email to advisorybodies@slocity.org. In the body of your email, please include the date of the meeting and the item number (if applicable). Emails *will not* be read aloud during the meeting.

Voicemail - Call (805) 781-7164 and leave a voicemail. Please state and spell your name, the agenda item number you are calling about, and leave your comment. Verbal comments must be limited to 3 minutes. Voicemails *will not* be played during the meeting.

**All correspondence will be archived and distributed to members, however, submissions received after the deadline may not be processed until the following day.*

Public Comment during the meeting:

Meetings are held in-person. To provide public comment during the meeting, you must be present at the meeting location.

Electronic Visual Aid Presentation. To conform with the City's Network Access and Use Policy, Chapter 1.3.8 of the Council Policies & Procedures Manual, members of the public who desire to utilize electronic visual aids to supplement their oral presentation must provide display-ready material to the City Clerk by 12:00 p.m. on the day of the meeting. Contact the City Clerk's Office at cityclerk@slocity.org or (805) 781-7114.

Pages

1. CALL TO ORDER

Chair Erica A. Stewart will call the Regular Meeting of the Whale Rock Commission to order.

2. PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA

The public is encouraged to submit comments on any subject within the jurisdiction of the Whale Rock Commission that *does not* appear on this agenda. Comments are limited to 3 minutes per person. Although the Commission will not take action on items presented during the Public Comment Period, the Chair may direct staff to place an item on a future agenda for discussion.

3. CONSENT

Matters appearing on the Consent Calendar are expected to be non-controversial and will be acted upon at one time. A member of the public may request the Whale Rock Commission to pull an item for discussion. The public may comment on any and all items on the Consent Agenda within the three-minute time limit.

3.a CONSIDERATION OF MINUTES - JUNE 3, 2024 WHALE ROCK COMMISSION MINUTES 5

Recommendation:

To approve the Whale Rock Commission Minutes of June 3, 2024.

4. ELECTION OF OFFICERS

4.a ANNUAL ELECTION OF THE WHALE ROCK COMMISSION CHAIR, VICE CHAIR, AND SECRETARY 11

Historically, the position of Chair rotates among members of the Commission. At the pleasure of the Commissioners, the next rotation would be Whitney McDonald, Chair; Luis Martinez, Vice Chair; and Emily Jackson, Secretary. After the election of officers, the new Chair presides over the meeting.

Recommendation:

Appoint Whitney McDonald as Commission Chair, Luis Martinez as Commission Vice Chair, and Emily Jackson as Commission Secretary.

5. PRESENTATIONS

Receive a presentation of staff's 2024 - 2025 accomplishments.

Receive a presentation outlining the 24-25 Cathodic Protection study of the Whale Rock pipeline.

Receive a presentation discussing the results of the alternative pipeline replacement study.

6. BUSINESS ITEMS

Receive a presentation of the 2023 - 24 Whale Rock Financial Statements.

Recommendation:

Receive and file the 2023 -24 Whale Rock Financial Statements.

Receive a presentation on the 2025 - 26 Budget for the Whale Rock Reservoir, including capital improvement projects and Commissioner contributions, and consider adopting the budget.

Recommendation:

Approve the 2025 - 26 Whale Rock Reservoir Budget.

7. COMMISSION REPORTS & COMMUNICATION

Commissioners may make announcements, report on activities, or refer items to staff for study and follow-up at a subsequent Whale Rock Commission meeting.

8. ADJOURNMENT

The next Regular Meeting of the Whale Rock Commission is Tentatively scheduled for May 2026 in the Council Hearing Room at City Hall, 990 Palm Street, San Luis Obispo.

LISTENING ASSISTIVE DEVICES are available -- see the Clerk

The City of San Luis Obispo wishes to make all of its public meetings accessible to the public. Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to the City Clerk's Office at (805) 781-7114 at least 48 hours before the meeting, if possible. Telecommunications Device for the Deaf (805) 781-7410.

Agenda related writings or documents provided to the Whale Rock Commission are available for public inspection on the City's website, under the Public Meeting Agendas web page: https://www.slocity.org/government/mayor-and-city-council/agendas-and-minutes. Meeting audio recordings can be found on the City's website: https://opengov.slocity.org/WebLink/Browse.aspx?id=175388

FROM: Aaron Floyd, Utilities Director
PREPARED BY Noah Evans, Whale Rock Reservoir Supervisor

SUBJECT: Draft 2024 Whale Rock Commission Meeting Minutes

RECOMMENDATION

Approve the Draft June 3, 2024, Whale Rock Commission Meeting Minutes.

June 3, 2024
Special Meeting

CALL TO ORDER

A Special Meeting of the Whale Rock Commission was called to order on Monday, June 3, 2024, at 3:00 p.m. in the Council Hearing Room located at City Hall, 990 Palm Street, San Luis Obispo, by City Staff.

ROLL CALL

Present:	Chair Chad Worth, Vice Chair Erica A. Stewart, Secretary Whitney McDonald, Commissioner - Emily Jackson, Commissioner Luis Martinez
Absent:	Commissioner Erica A. Stewart
Staff Present:	Noah Evans, Whale Rock Supervisor; Mychal Boerman, Deputy Director-Water; Aaron Floyd, Utilities Director; Serenity Stuckenberg, Supervising Administrative Assistant

PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA
None
--End of Public Comment--

CONSIDERATION OF MINUTES

1. WHALE ROCK COMMISSION MINUTES OF MAY 4, 2023

ACTION: MOTION BY COMMISSIONER JACKSON, SECOND BY COMMISSIONER MCDONALD, 4-0-1 (Vice Chair Stewart absent) to approve the minutes of the Regular Meeting of the Whale Rock Commission of May 4, 2023.

No comment

2. ELECTION OF OFFICERS – ANNUAL ELECTION OF THE WHALE ROCK COMMISSION CHAIR, VICE CHAIR, AND SECRETARY

Recommendation: Appoint Erica A. Stewart as Commission Chair, Whitney McDonald as Commission Vice-Chair, and Luis Martinez as Commission Secretary.

ACTION: MOTION BY COMMISSIONER MCDONALD, SECOND BY COMMISSIONER JACKSON CARRIED 4-0-1, (Vice Chair Stewart absent) that Commissioner Stewart is appointed as Chair, Commissioner McDonald is appointed as Vice-Chair and Commissioner Martinez as Secretary. The meeting was turned over to the new Chair, Stewart.

No Comment

PRESENTATION

3. 2023-24 ACCOMPLISHMENTS

Noah Evans, Whale Rock Supervisor Provided a presentation of the 2023-24 accomplishments.

Stewart concerned about sinkholes near public spaces as well as duplicity for repairs aka Hank and his son.

McDonald asked about whether the repairs were FEMA eligible.

Worth asked about relining and if it had to happen at once or in phases – the study to provide recommendations and alternatives.

Public Comments:
None
--End of Public Comment--

ACTION: No action taken.

4. WHALE ROCK STANDBY ROTATION MODIFICATIONS

Mychal Boerman, Deputy Director of Utilities – Water presented modifications to the Whale Rock Standby rotation.

Public Comments:
None
--End of Public Comment--

ACTION: No action taken.

BUSINESS ITEMS

5. WHALE ROCK DAM KEEPER'S RESIDENCE ADMINISTRATION GUIDELINES AND LEASE AGREEMENT AMENDMENTS

Receive presentation regarding proposed modifications to the Whale Rock Residence Lease Agreement

Public Comments:
None
--End of Public Comment--

ACTION: MOTION BY VICE CHAIR MCDONALD, SECOND BY COMMISSIONER JACKSON, 4-0-1, (Chair Stewart absent) to:

A. Approve Modifications to the Whale Rock Dam Keeper's Residence Guidelines; and
B. Authorize the City of San Luis Obispo City Manager or their designee to approve any and all lease amendments, in accordance with the Whale Rock Dam Keeper's Residence Guidelines.

6. FY 2022-23 FINANCIAL STATEMENTS

Tavy Garcia, Senior Accountant, provided a presentation on the Fiscal Year 2022-23 Financial Statements.

Public Comments:
None
--End of Public Comment--

ACTION: MOTION BY COMMISSIONER WORTH, SECOND BY COMMISSIONER MARTINEZ 4-0-1, (Chair Stewart absent) to accept the fiscal year 2023-24 Financial Statements as presented.

7. 2024-25 WHALE ROCK RESERVOIR BUDGET

Shane Whittington, Business Manager, presented the 2024-25 Whale Rock Reservoir budget, including capital improvement projects (CIP) and Commission member contributions and consider budget adoption.

Public Comments:
None
--End of Public Comment--

ACTION: MOTION BY COMMISSIONER VICE CHAIR MCDONALD, SECOND BY COMMISSION JACKSON, 4-0-1, (Chair Stewart absent) to adopt the 2024-25 Whale Rock Reservoir Budget.

Update table 3 – to show operating reserves more clearly

8. ADVERTISEMENT AND AWARDING OF ROADWAY PAVEMENT AND DAM CREST RESTORATION PROJECT

Noah Evans, Whale Rock Supervisory provided a presentation on the Roadway Paving Project

Public Comments:

None

--End of Public Comment--

ACTION: MOTION BY COMMISSIONER MARTINEZ, SECOND BY COMMISSIONER JACKSON, 4-0-1, (Chair Stewart absent) to:

1. Authorize staff to advertise for bids for the Roadway Paving Project and Dam Crest Restoration project.

2. Authorize the City of San Luis Obispo City Manager to award contracts to lowest responsible bids that are within the remaining project budget of $520,000 or can be supplemented through the use of Completed Projects funds.

9. ADVERTISEMENT AND AWARDING OF A REQUEST FOR PORPOSAL (RFP) FOR ADVANCED INSTRUMENTATION OF WHALE ROCK DAM

Noah Evans, Whale Rock Supervisor provided a presentation on Advanced Instrumentation at Whale Rock Dam.

Public Comments:
Chad Worth
--End of Public Comment--

ACTION: MOTION BY COMMISSIONER MARTINEZ, SECOND BY VICE CHAIR MCDONALD, 4-0-1, (Chair Stewart absent) to:

1. Authorize staff to advertise an RFP for the design and installation of Advanced Instrumentation as Whale Rock Dam; and

2. Authorize the City of San Luis Obispo City Manager to award a contract for the selected RFP within the available project budget of $250,000

10. ADVERTISEMENT AND AWARDING FOR RFQS FOR A CONDITION STUDY AND DESIGN FOR PUMP STATION IMPROVEMENTS

Noah Evans, Whale Rock Supervisor, provided presentation on Pump Station Condition Study and Optional Design of Pump Station Improvements for Whale Rock's two pump stations.

ACTION: MOTION BY COMMISSIONER JACKSON, SECOND BY COMMISSIONER MARTINEZ, 4-0-1, (Chair Stewart absent) to:

1. Authorize staff to advertise an RFQ for a Condition Study and Design of upgrades to the Whale Rock Pump Stations; and
2. Authorize the City of San Luis Obispo City Manager to award a contract for the selected RFQ if within the available project budget of $500,000

COMMISSION REPORTS & COMMUNICATION

None

ADJOURNMENT

Vice Chair McDonald adjourned the meeting at 3:17p.m.

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 2 – Election of Whale Rock Commission Officers

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Noah Evans, Whale Rock Reservoir Supervisor

SUBJECT: Election of Whale Rock Commission Officers

RECOMMENDATION

Appoint Whitney McDonald as Commission Chair, Luis Martinez as Commission Vice Chair, and Emily Jackson as Commission Secretary.

DISCUSSION

Historically, the chair position rotates among the commissioners. At the pleasure of the commissioners, the next rotation would be Chair; Whitney McDonald, Chair; Luis Martinez, Vice Chair; Emily Jackson, Commission Secretary. After the election of officers, the new Chair presides over the meeting. The newly elected Chair, Vice Chair, and Secretary will maintain their positions on the commission for a single-year term, until new appointments are made during the 2026 Whale Rock Commission meeting.

Future Commission Officer Rotation Schedule

Year	Chair	Vice Chair	Secretary
2024-25 (Current Year)	City of SLO Mayor	City of SLO City Manager	CMC Representative
2025-26 (Upcoming Year)	City of SLO City Manager	CMC Representative	City of SLO Finance Director
2026-27	CMC Representative	City of SLO Finance Director	Cal Poly Representative
2027-28	City of SLO Finance Director	Cal Poly Representative	City of SLO Mayor
2028-29	Cal Poly Representative	City of SLO Mayor	City of SLO City Manager
2029-30	City of SLO Mayor	City of SLO City Manager	CMC Representative

ENVIRONMENTAL REVIEW

The California Environmental Quality Act does not apply to the recommended action, because the action does not constitute a “Project” under CEQA Guidelines Sec

15278.

FISCAL IMPACT
This action results in no fiscal impact to the Whale Rock Commission.

ALTERNATIVES
The Whale Rock Commission members may elect to modify the rotation schedule for commission positions. This alternative is not recommended as the proposed rotation is consistent with the rotation previously approved by the commission at the 2023 Whale Rock Commission Meeting.

ATTACHMENTS
No attachments

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 3 – 2024-25 Accomplishments

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Noah Evans, Whale Rock Supervisor

SUBJECT: 2024-25 Accomplishments

RECOMMENDATIONS
No action is requested of the commission for this update/presentation.

DISCUSSION
Whale Rock staff are responsible for the maintenance, repair, and operation of all Whale Rock facilities and infrastructure, including the dam, spillway, intake structure, pump stations, pipeline, public access areas, and associated infrastructure.

Significant accomplishments for 2024-25 include:

1. Staff received a Spillway Underdrain Repair Project completion letter from the Division of Safety of Dams.
2. Staff recoated seven Whale Rock pipeline crossings.
3. Staff replaced two check valves at Pump Station B.
4. Staff worked with ACUREN to perform a cathodic protection study.

RECOATED PIPELINE CROSSING

5. Staff developed and implemented the Whale Rock Volunteer Day program
6. Staff worked with HDR Engineering to study alternative pipeline replacement strategies.
7. Staff repaired hydraulic piezometers that monitor dam safety and performance.

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 3 – 2024-25 Accomplishments

A detailed presentation of the 2024-25 Whale Rock accomplishments will be provided during the commission meeting.

Whale Rock Commission Report

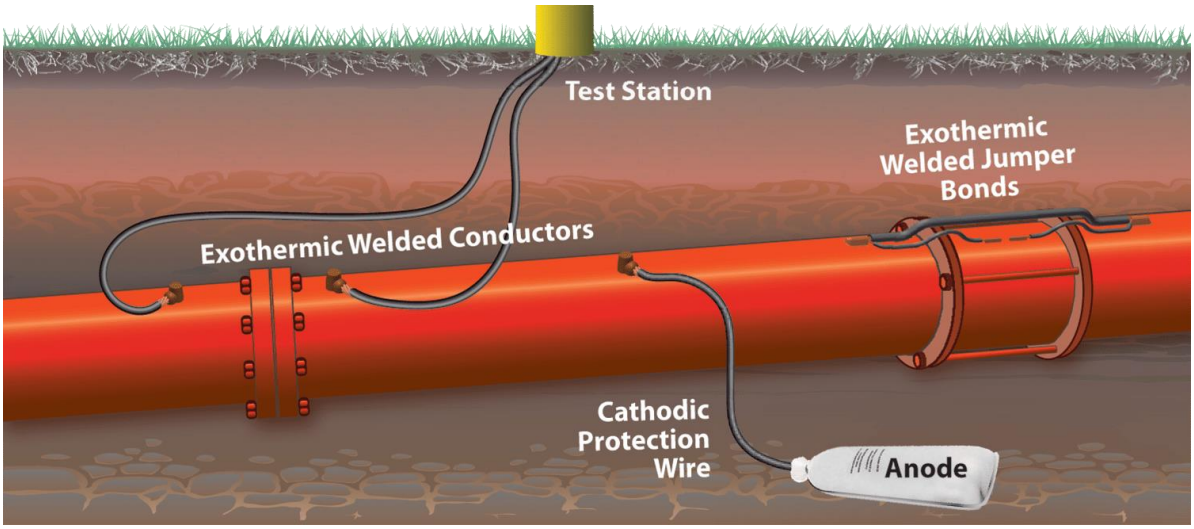
Whale Rock Commission Meeting – May 8, 2025
Agenda Item 4 – Cathodic Protection Study, Whale Rock Pipeline

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Noah Evans, Whale Rock Supervisor

SUBJECT: Cathodic Protection Survey of the Whale Rock Pipeline

RECOMMENDATIONS
No action is requested of the Commission for this update/presentation.

DISCUSSION
Cathodic protection prevents corrosion in metal structures, such as pipelines and tanks, by applying a low electrical current. This method has been utilized since the 1930s. We use sacrificial cathodic protection for the Whale Rock pipeline, where magnesium sulfide acts as the anode, corroding in place of the pipeline to protect it.



SACRIFICIAL ANODE CATHODIC PROTECTION SYSTEM

In January, our team collaborated with a specialized consultant to conduct a comprehensive survey of Whale Rock's cathodic protection system (CPS). The survey's objective was to assess the effectiveness of the CPS by measuring pipeline-to-soil electrical flows against established industry standards at various points along the pipeline. Key factors influencing the performance of the CPS, including electrical isolation, interference, and continuity, were evaluated.

The consultant's report provides the following recommendations aimed at enhancing the functionality of the CPS:

Recommendations:

1. Replacement of Anodes: Seventeen anodes require replacement. Anodes are sacrificial components that protect the pipeline from corrosion by corroding themselves. Anodes are wired to the pipeline and buried nearby. The replacement process will involve excavation, installation of new anodes, and backfilling of the excavated areas.

2. **Installation of Electrical Isolators:** To improve performance and eliminate any risk of interference with the City of San Luis Obispo Water Treatment Plant's metal pipes, electrical isolators will be installed between the Whale Rock pipeline and the Water Treatment Plant.

3. **Re-establishment of Anode and Test Station Connections:** Connections between the anodes and test stations will be re-established at eleven specific locations. This will enable assessing anode performance at these sites, some of which may require new anode installations.

4. **Installation of Additional CPS Test Stations:** Six additional CPS test stations will be installed along the pipeline. Currently, there are no CPS test stations between Pump Station B and the SLO Water Treatment Plant, which spans approximately four miles.

Staff plans to re-establish the anode-to-test station connections (Report Recommendation #3) over the coming months and to install the six additional CPS test stations (Report Recommendation #4) during the summer. Additionally, staff will develop a project for the Commission's future consideration to address Recommendations 1 and 2.

ATTACHMENTS:

A - Cathodic Protection Survey Whale Rock Pipeline

2025 Whale Rock 30” Waterline Cathodic Protection Survey

Report – Cathodic Protection Services

Issued To: **City of San Luis Obispo**

Prepared By: **Acuren Inspection Inc.**

Issue Date: **2025-03-05**

Document ID: **ACUUS-J212126-RSV-0.0**

Rev.	Date	Issued For	Summary of Changes	Originator	Reviewer	Approver
0	2025-03-05	Review	First Issue	Jason Riggins Senior CP Technician US CP Division	Lisseth Ocando Corrosion Engineer US CP Division	Matthew Buchynski Engineering Manager US CP Division

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ATTENTION: Noah Evans

RE: 2025 CATHODIC PROTECTION SURVEY REPORT
CITY OF SAN LUIS OBISPO – WHALE ROCK 30" WATERLINE

Authorization to proceed with the 2025 cathodic protection (CP) survey for the Whale Rock 30" Pipeline was received electronically from Noah Evans. Acuren Inspection Inc. (Acuren) personnel conducted the fieldwork between January 21, 2025 and January 23, 2025 to assess the status of the CP system.

1.0 PURPOSE

The purpose of the survey was to evaluate the effectiveness of the CP system(s) by measuring structure-to-electrolyte potentials against established industry criteria at all points of access as per CFR Title 49, Part 195 *Transportation of Hazardous Liquids by Pipeline*. Additionally, critical elements which influence the performance of a CP system, such as electrical isolation, electrical interference, and continuity were evaluated. Any encountered deficiencies have been recorded in this report. Minor repairs were completed where required and any remedial work identified to ensure optimal performance of the CP system(s).

2.0 CRITERIA

To evaluate the effectiveness of CP systems, structure-to-electrolyte potential measurements are recorded from all design structures and assessed against industry recognized criteria. Accepted standards for the control of external and internal corrosion include, but are not limited to:

- NACE SP0169-2024: *Control of External Corrosion on Underground or Submerged Metallic Piping Systems*

The accepted criteria for corrosion control of buried or submerged steel structures in the above standard(s) is generally defined as one of the following:

- A minimum of 100 mV of cathodic polarization.

- A polarized structure-to-electrolyte potential of -850 mV or more negative measured with respect to a copper/copper sulphate reference electrode.

Use of the 100-mV criterion requires the measurement of either the formation or decay of polarization. Measuring the formation of polarization requires an accurate static potential reading for comparison at each test location. Static potentials can only be collected when CP system(s) have been turned 'OFF' for a sufficient period to allow for complete depolarization. Measuring the decay of polarization requires the establishment of polarized potentials with all CP systems electrically continuous with an asset turned 'ON'. Polarization decay can then be measured by turning off all applicable CP current sources.

In some circumstances, environmental factors may affect cathodic polarization behavior, requiring specific adjustments to the applicable criteria for adequate CP. Where non-ferrous metals are present, adjustments to the criteria are necessary to preserve the external integrity of the buried metal structure. Extensions of the criteria for these specific situations are further described in the applicable standard(s).

3.0 RECOMMENDATIONS

The following are recommended in order to achieve optimum levels of CP for the Whale Rock pipeline:

- Ensure that the remedial work outlined on the attached "Summary of Deficiencies" is completed and notify Acuren as soon as practical if a re-evaluation of the problem area(s) is desired.
- Continue to operate the impressed current CP system(s) at their respective target current outputs. Ensure the rectifier readings are recorded on a bi-monthly basis.
- Ensure that the galvanic anode system(s) are monitored on a periodic basis and the data collected is stored properly for reference.
- Ensure adequate access is available to all locations during the annual CP survey.
- Consider utilizing Acuren's pipeline integrity services (Indirect Inspection, ECDA) for any length of pipeline where coating condition, burial depth, or CP potentials are of concern.

- Notify Acuren of any changes, additions, or modifications to the facility operation which may impact the operation of the CP system(s) or the status of CP on any protected structures.
- Authorize Acuren to complete the annual CP survey of the facilities in 2026.

4.0 SYSTEM DESCRIPTION

The Whale Rock - Pump Station facilities assets (inlet/outlet headers) are protected by impressed current cathodic protection (ICCP) systems. Specific details concerning the ICCP system design were not available at the time of the survey. The 30" Whale Rock waterline is protected by a series of galvanic anode placements.

4.1 CURRENT SOURCES

The status and output of the rectifier(s) in the Whale Rock – Pump Station facilities is listed in 'Table 1'. It is recommended that the rectifier(s) operate within their target current output(s) to ensure optimum performance of the CP system(s). Specifications and operational data for each rectifier can be found in "Appendix 2".

TABLE 1: RECTIFIER OUTPUT

Rectifier Description	Location	Target Output (A)	Actual Output (A)	Notes
Alpha	Pump Station A	0.4-0.6	0.5	Protects Inlet & Outlet Headers
Bravo	Pump Station B	0.6-0.8	0.7	Protects Inlet & Outlet Headers

The location and status of the galvanic anodes along the 30" Whale Rock pipeline is listed in 'Table 2'. Of the 20x anode test stations detailed only 2x locations have active anode connections with potentials showing an influence of cathodic protection. Anode test station deficiencies are detailed in the deficiency summary found in "Appendix 1".

TABLE 2: GALVANIC ANODE OUTPUT

Galvanic Anode Description	Location	Anode Output (mA)	Notes
Magnesium	10+00	0.0	Anode disconnected
Magnesium	71+30	0.0	Anode depleted
Magnesium	96+30	0.0	Anode depleted
Magnesium	96+30	0.0	Anode disconnected (Rear)
Magnesium	130+00	NR	Anode present and functional
Magnesium	157+00	0.0	Anode disconnected
Magnesium	165+00	0.0	Anode depleted
Magnesium	180+25	0.0	Anode(s) disconnected
Magnesium	207+00	0.0	Anode(s) disconnected
Magnesium	227+00	0.0	Anode depleted
Magnesium	295+05	0.0	Anode disconnected
Magnesium	300+00	NR	Anode present and functional
Magnesium	310+90	0.0	Anode disconnected
Magnesium	313+90	0.0	Anode(s) disconnected
Magnesium	397+25	0.0	Anode(s) disconnected
Magnesium	515+00	0.0	Anode disconnected
Magnesium	559+30	0.0	Anode depleted
Magnesium	579+00	0.0	Anode disconnected
Magnesium	602+50	0.0	Anode disconnected
Magnesium	602+50	0.0	Anode disconnected (Rear)

4.2 TEST STATIONS

Test stations are essential pieces of monitoring equipment for evaluation of the performance of a CP system. Test stations can provide additional CP data at locations where no other above ground structures are present for measurement. It is recommended that test stations remain in good working order to facilitate future data collection during annual surveys. Test stations deficiencies should be addressed according to the priority rating in "Appendix 1". Figure 1 shows the actual view of the location of these test stations.

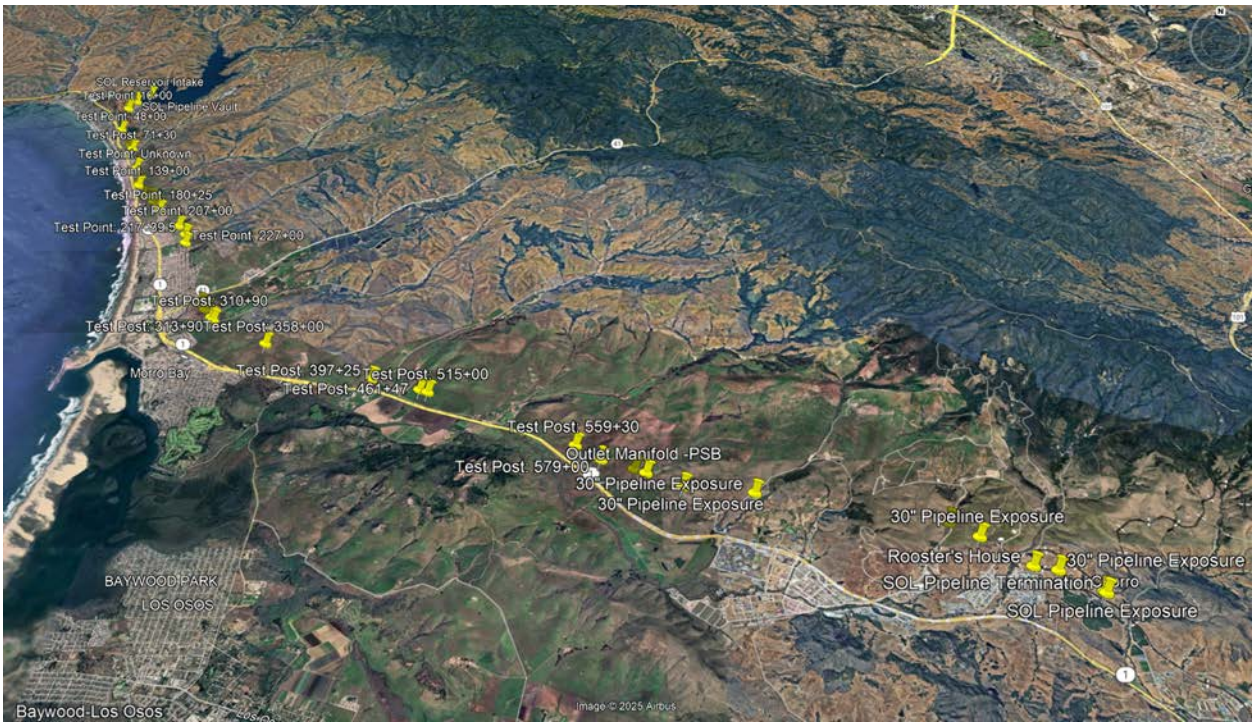

FIGURE 1: TEST STATION LOCATION – ACTUAL VIEW

Test station placement along the 30" Whale Rock waterline begin at station# 10+00 and end at station# 602+50. There are no additional test station locations between Pump Station "B" and the termination of the waterline at the regional treatment plant, approximately 4.5 miles.

5.0 RESULTS

5.1 STATUS OF CATHODIC PROTECTION

The impressed current cathodic protection systems for Pump Station A & B showed moderate levels of CP, assets meet 100mV criteria.

The galvanic anode cathodic protection systems for the 30" Whale Rock waterline showed inadequate levels of CP; CP levels are expected to improve once the deficiencies noted in 4.1 are addressed.

5.2 SYSTEM REPAIRS

Minor repairs to the CP system were completed during the 2025 survey where possible. Repairs completed are summarized in 'Table 3'.

TABLE 3: REPAIRS PERFORMED

Asset Repaired	Location	Deficiency Description	Repair Performed
TR-Alpha	Pump Station A	Rectifier (Alpha) has a broken negative structure cable.	Established structure negative

5.3 ELECTRICAL ISOLATION

Electrical isolation devices are placed strategically along the 30" Whale Rock waterline to prevent current drains to unintended structures, that could detrimentally affect the operation of the CP system(s). Electrical isolation devices should be repaired or installed according to the isolation deficiencies in "Appendix 1". All procured isolation devices should be rated for oil and gas environments, the appropriate services temperature and pressure rating, and their specific application.

5.4 SUMMARY

At the time of the survey, the majority of the below ground design structures were not receiving adequate CP as defined by NACE SP0169-2024 to mitigate external corrosion. "Appendix 1" outlines the system repairs, modifications, and upgrades recommended at this time.

Once the recommended repairs are completed, facilities requiring CP should be adequately protected. 'Table 6' outlines the dates and personnel responsible for this project.

TABLE 4: PROJECT DETAILS

Project Dates:	Field:	January 21, 2025 to January 23, 2025
	Office:	February 15, 2021 to March 5, 2025
Personnel :	Field:	- Jason Riggins, Senior CP Technician
	Office:	- Jason Riggins, Senior CP Technician - Lisseth Ocando, Corrosion Engineer - Matthew Buchynski, Engineering Manager

Acuren appreciates the opportunity to have completed this project and looks forward to working with you again in the future. Should there be any questions, comments, or concerns regarding the contents of this report, please contact the undersigned.

Respectfully,

ACUREN INSPECTION INC.

Matthew Buchynski, P.Eng., NACE CP3 Technologist

Engineering Manager – US CP

Phone: (587) 217-0466

Email: matthew.buchynski@acuren.com

APPENDIX 1: CATHODIC PROTECTION SUMMARY OF DEFICIENCIES

ACUREN

CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
SUMMARY OF DEFICIENCIES
2025 CP SURVEY - 30" WATERLINE

Priority:
1 - Deficiency causes asset to not meet criteria. Asset out of compliance.
2 - Deficiency is not causing negative effects to asset at present but may in future.
3 - Deficiency impacts the completion of the intended scope of work.

Deficiency ID	Test Point ID	Deficiency Type	Priority	Asset ID	Description	Recommended Action	Cost Estimate	Action Assigned To	Additional Reference	Deficiency Status	Target Completion Date	Actual Completion Date	Comments
SOL-0001		Electrical Insulation	1		Conveyance conduit is shorted to piping system of the water treatment plant. This issue is a concern and is reduce the life of the CP systems and lowering CP protection levels on the water system.	Recommended to install permanent isolators and remeasure to ensure total isolation and improved mechanical connection.		City of San Luis Obispo	Water Treatment Facility	Incomplete	2025/12/30	2024/10/14	
SOL-0002	System	Inadequate Monitoring	2	Water Piping System	Missing multiple periods of rectifier operational data. Synchronous interruption require to gather reliable IR free potentials required.	Install Remote Monitoring Units at each of the three operational rectifiers or establish a bi-monthly rectifier inspection/reporting program.		SOL/Acuren		Monitor	2025/12/30		Acuren to provide proposal
SOL-0003	System	Inadequate Reference Information	2	Facility	System drawings are missing updates and MOC information.	Redline and update drawings after completion of deficiency remediation, circuit reconfiguration, and annual survey. Draft updates and install printed copies in rectifiers/JBs.		SOL/Acuren		Incomplete	2025/03/30		Acuren to provide proposal
SOL-0004	System	Rectifier/Groundbed	1	TR-Alpha	Rectifier (Alpha) has a broken negative structure cable. Rectifier is functional, but not connected to inlet/ outlet headers.	Establish structure negative, energize ICCP system and allow to polarize. Update system documentation to reflect system changes.		Acuren	Pump Station A	Complete	2025/01/22	2025/01/23	Completed as part of project
SOL-0005	System	Inadequate Cathodic Protection	1	TR-Bravo	Test point not meeting 100mV / 850mV criterion.	Adjust system output. Update system documentation to reflect system changes.		Acuren	Pump Station B	Complete	2025/01/22	2025/01/23	Completed as part of project
SOL-0006	TP 10+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0007	TP 48+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0008	TP 63+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0009	TP 65+85	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0010	TP 71+30	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0011	TP 96+30	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0012	TP 139+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0013	TP 143+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0014	TP 157+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0015	TP 160+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0016	TP 165+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0017	TP 176+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		

ACUREN

CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
SUMMARY OF DEFICIENCIES
2025 CP SURVEY - 30" WATERLINE

Priority:
1 - Deficiency causes asset to not meet criteria. Asset out of compliance.
2 - Deficiency is not causing negative effects to asset at present but may in future.
3 - Deficiency impacts the completion of the intended scope of work.

Deficiency ID	Test Point ID	Deficiency Type	Priority	Asset ID	Description	Recommended Action	Cost Estimate	Action Assigned To	Additional Reference	Deficiency Status	Target Completion Date	Actual Completion Date	Comments
SOL-0018	TP 180+25	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0019	TP 207+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0020	TP 217+39.5	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0021	TP 227+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0022	TP 257+10	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0023	TP 295+05	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0024	TP 310+90	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0025	TP 313+90	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0026	TP 358+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0027	TP 397+25	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0028	TP 430+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0029	TP 461+47	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0030	TP 515+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0031	TP 559+30	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0032	TP 579+00	Inadequate Cathodic Protection	1	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing galvanic anode at this location		Acuren		Monitor	12/30/2025		
SOL-0033	TP 602+50	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Re-establish galvanic anode connection and allow to polarize.		Acuren		Monitor	12/30/2025		
SOL-0034	PLEX-03	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		
SOL-0035	PLEX-04	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		
SOL-0036	PLEX-05	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		
SOL-0037	PLEX-06	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		

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CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
SUMMARY OF DEFICIENCIES
2025 CP SURVEY - 30" WATERLINE

Priority:
1 - Deficiency causes asset to not meet criteria. Asset out of compliance.
2 - Deficiency is not causing negative effects to asset at present but may in future.
3 - Deficiency impacts the completion of the intended scope of work.

Deficiency ID	Test Point ID	Deficiency Type	Priority	Asset ID	Description	Recommended Action	Cost Estimate	Action Assigned To	Additional Reference	Deficiency Status	Target Completion Date	Actual Completion Date	Comments
SOL-0038	PLEX-07	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		
SOL-0039	PLEX-08	Inadequate Cathodic Protection	2	Water Piping System	Test point not meeting 100mV / 850mV criterion.	Consider installing anode test station.		Acuren	Pipeline Exposure	Monitor	12/30/2025		
SOL-0040		Monitoring	3	Water Piping System	Need 2025 "off" potential	Interrupted 2026 Annual Survey		Acuren		Incomplete	1/30/2026		Acuren to provide proposal

APPENDIX 2: RECTIFIER AND GROUNDBED DATA

CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
RECTIFIER INSPECTION DATA
2025 CP SURVEY - 30" WATERLINE

Project Name	Rectifier ID	Rectifier Location Description	Serial Number	Model Number	Manufacturer	Rectifier Reading Date	Reading Status	Tap Settings	Total Voltage (V_{DC})	Total Amperage (A)	Circuit Resistance (Ω)	Field Comments	Comments	Shunt Rating	Rated AC Voltage 1	Rated AC Amperage 1	Fuse Type	Number of Spare Fuses	As Built Site Sketch	Rectifier Schematic	Rectifier External Disconnect	CP Warning Signs	Inspection Company	Inspector Name
SLO WHALE ROCK	ALPHA	PSA - MCC	932321	ES	Universal Rectifiers	2025-01-22	AF	Cl F2	7.63	0	NR	No current output	Trace Neg. attachment	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins
SLO WHALE ROCK	ALPHA	PSA - MCC	932321	ES	Universal Rectifiers	2025-01-22	AA	C1 F6	16.39	0	NR	No Neg. Attachment	Re-establish Neg. Attachment	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins
SLO WHALE ROCK	ALPHA	PSA - MCC	932321	ES	Universal Rectifiers	2025-01-22	AL	C1 F6	4.29	0.50	8.58	Neg. Established	Allow to polarize - Re-survey	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins
SLO WHALE ROCK	BRAVO	PSB - MCC	932322	ES	Universal Rectifiers	2025-01-22	AF	C2 F1	10.42	0.2	52.10	Header potential low	Adjust output	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins
SLO WHALE ROCK	BRAVO	PSB - MCC	932322	ES	Universal Rectifiers	2025-01-22	AA	C2 F6	16.39	0.4	40.98	Header potential low	Adjust output	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins
SLO WHALE ROCK	BRAVO	PSB - MCC	932322	ES	Universal Rectifiers	2025-01-22	AL	C2 F6	17.36	0.70	24.80	Header potential low	As-Left	1mv/ 0.2A	20	5	AC	0	No	No	No	No	Acuren	J. Riggins

APPENDIX 3: STRUCTURE-TO-ELECTROLYTE POTENTIAL DATA

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CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
CP TEST POINT DATA
2025 CP SURVEY - 30" WATERLINE

Project Name	Test Point Terminal ID	Test Point Lead ID	Client Asset Designation	Pipeline License Number	From Location	To Location	Substance	OD (in)	Length (ft)	Status	Material	Structure On (-mV_{csl})	Structure Off (-mV_{csl})	Anode On (-mV_{csl})	Anode Off (-mV_{csl})	Reference Cell Location	Field Comments	Comments	Measurement Status	Measurement Date	Interrupted Protection Source	Technician Name
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**346**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
10+00	Lead #2 - Anode	1x - Red	-	-	-	-	-	-	-	-	-				1415	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
35.442646	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.887133	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Test Station	Lead #1 - Pipe 1	1x - Bare	CC	-	Reservoir	Station A	Water	30	-	O	-		**570**			Port. Ref.	No Anode at location	40+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
48+00	Lead #2 - Pipe 1	1x - Bare	CC	-	Reservoir	Station A	Water	30	-	O	-		**570**			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.434807	Lead #3 - Pipe 1	1x - Bare	CC	-	Reservoir	Station A	Water	30	-	O	-		**570**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.88579	Lead #4 - Pipe 1	1x - Bare	CC	-	Reservoir	Station A	Water	30	-	O	-		**570**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**475**			Port. Ref.	No Anode at location	63+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
63+00	Lead #2 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**475**			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.429397	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.881814	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**430**			Port. Ref.	No Anode at location		AF	1/21/2025	N/A	J. Riggins
65+85	Lead #0 - Empty		-	-	-	-	-	-	-	-	-								AF	1/21/2025	N/A	J. Riggins
35.428832	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.881311	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**330**			Port. Ref.		71+30 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
71+30	Lead #2 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-		**330**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
35.427664	Lead #3 - Pipe 2	1x - White	CC	-	Reservoir	Station A	Water	30	-	O	-		**449**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.880275	Lead #4 - Pipe 2	1x - White	CC	-	Reservoir	Station A	Water	30	-	O	-		**449**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			**449**		Port. Ref.	Anode Depleted		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-	**415**				Port. Ref.		Pump Station A	AF	1/21/2025	N/A	J. Riggins
96+30	Lead #2 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-			**415**		Port. Ref.	Anode Depleted	ICCP system installed/ Non-Functional	AF	1/21/2025	N/A	J. Riggins
35.421243	Lead #3 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-			**415**		Port. Ref.	Anode Depleted	Protects Inlet/ Outlet Header	AF	1/21/2025	N/A	J. Riggins
-120.876756	Lead #0 - Header 1	1x - Black	CC	-	Station A	Station A	Water	-	-	O	-		**250**			Port. Ref.		Establish structure negative	AF	1/21/2025	N/A	J. Riggins
	Lead #0 - Header 2	1x - Black	CC		Station A	Station A	Water	-	-	O	-		**246**			Port. Ref.		Headers not isolated from pipeline	AF	1/21/2025	N/A	J. Riggins
	Lead #1 - Pipe 2	1x - Black	CC		Station A	Station A	Water	-	-	O	-		**237**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #2 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-				1200	Port. Ref.	Anode not connected	TP at Rear of station	AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - White	CC	-	Station A	Station B	Water	30	-	O	-	1279				Port. Ref.		Active Anode location	AF	1/21/2025	N/A	J. Riggins
130+00	Lead #2 - Pipe 1	1x - White	CC	-	Station A	Station B	Water	30	-	O	-	1279				Port. Ref.			AF	1/21/2025	N/A	J. Riggins
35.416033	Lead #3 - Pipe 2	1x - White	CC	-	Station A	Station B	Water	30	-	O	-		**713**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.874328	Lead #4 - Pipe 2	1x - White	CC	-	Station A	Station B	Water	30	-	O	-		**713**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Red	-	-	-	-	-	-	-	-	-			1279		Port. Ref.	Anode present		AF	1/21/2025	N/A	J. Riggins
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**385**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
139+00	Lead #0 - Empty		-	-	-	-	-	-	-	-	-						No Anode at location					
35.415255	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.874005	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**439**			Port. Ref.		143+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
143+00	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**439**			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.411367	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**420**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.871147	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**420**			Port. Ref.	No Anode at location		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		439			Port. Ref.		157+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
157+00	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		439			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.41093	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**417**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.870125	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		417			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1417	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins

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CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
CP TEST POINT DATA
2025 CP SURVEY - 30" WATERLINE

Project Name	Test Point Terminal ID	Test Point Lead ID	Client Asset Designation	Pipeline License Number	From Location	To Location	Substance	OD (in)	Length (ft)	Status	Material	Structure On (-mV_{cse})	Structure Off (-mV_{cse})	Anode On (-mV_{cse})	Anode Off (-mV_{cse})	Reference Cell Location	Field Comments	Comments	Measurement Status	Measurement Date	Interrupted Protection Source	Technician Name
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		505			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
160+00	Lead #0 - Empty		-	-	-	-	-	-	-	-	-					Port. Ref.	No Anode at location		AF	1/21/2025	N/A	J. Riggins
35.410217	Lead #0 - Empty		-	-	-	-	-	-	-	-	-					Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.86901	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	587				Port. Ref.			AF	1/21/2025	N/A	J. Riggins
165+00	Lead #2 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-			587		Port. Ref.	Anode depleted		AF	1/21/2025	N/A	J. Riggins
35.408715	Lead #3 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-			587		Port. Ref.	Anode depleted		AF	1/21/2025	N/A	J. Riggins
-120.867843	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		578			Port. Ref.		171+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
176+00	Lead #0 - Empty		-	-	-	-	-	-	-	-	-						No Anode at location	Confirm Isolation				
35.407844	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.866588	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		525			Port. Ref.		180+25 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
180+25	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		525			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.406898	Lead #3 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-				1324	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
-120.865904	Lead #4 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-				1325	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		437			Port. Ref.		207+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
207+00	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		437			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.401691	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		426			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.859617	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		426			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1315	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
	Lead #6 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1297	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	413				Port. Ref.			AF	1/21/2025	N/A	J. Riggins
217+39.5	Lead #2 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			413		Port. Ref.	Anode present	217+39.5 Bond station	AF	1/21/2025	N/A	J. Riggins
35.399405	Lead #0 - Empty		-	-	-	-	-	-	-	-	-							16" Foreign Line Crossing - Valley				
-120.857469	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	217				Port. Ref.		227+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
227+00	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	217				Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.396956	Lead #3 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			217		Port. Ref.	Anode present		AF	1/21/2025	N/A	J. Riggins
-120.856558	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		545			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
257+10	Lead #0 - Empty		-	-	-	-	-	-	-	-	-						No Anode at location	247+73 - 266+52 Parrallel Gas Main				
35.380229	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.847629	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		497			Port. Ref.		292+50 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
295+05	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		497			Port. Ref.		295+05 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
35.378811	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		507			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
-120.846187	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		507			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1437	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	1182				Port. Ref.		Active Anode location	AF	1/21/2025	N/A	J. Riggins
300+00	Lead #2 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		727			Port. Ref.		302+50 Foreign Line Crossing - PG&E	AF	1/21/2025	N/A	J. Riggins
35.376827	Lead #3 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			1182		Port. Ref.	Anode present		AF	1/21/2025	N/A	J. Riggins
-120.844256	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		582			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
310+90	Lead #2 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-				1543	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
35.376827	Lead #3 - Anode	1x - Black	-	-	-	-	-	-	-	-	-					Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.844256	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											

ACUREN

CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
CP TEST POINT DATA
2025 CP SURVEY - 30" WATERLINE

Project Name	Test Point Terminal ID	Test Point Lead ID	Client Asset Designation	Pipeline License Number	From Location	To Location	Substance	OD (in)	Length (ft)	Status	Material	Structure On (-mV_{CSE})	Structure Off (-mV_{CSE})	Anode On (-mV_{CSE})	Anode Off (-mV_{CSE})	Reference Cell Location	Field Comments	Comments	Measurement Status	Measurement Date	Interrupted Protection Source	Technician Name
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**727**			Port. Ref.		312+00 Insulating Coupling	AF	1/21/2025	N/A	J. Riggins
313+90	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**727**			Port. Ref.		Confirm Isolation	AF	1/21/2025	N/A	J. Riggins
35.376173	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**505**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
-120.843635	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**508**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1451	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
	Lead #6 - Anode	1x - Black	-	-	-	-	-	-	-	-	-				1468	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-	**482**				Port. Ref.			AF	1/21/2025	N/A	J. Riggins
358+00	Lead #2 - Pipe 2	1x - Black	CC	-	Reservoir	Station A	Water	30	-	O	-	**319**				Port. Ref.			AF	1/21/2025	N/A	J. Riggins
35.369856	Lead #3 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-			**482**		Port. Ref.	Anode present		AF	1/21/2025	N/A	J. Riggins
-120.831119	Lead #4 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-			**319**		Port. Ref.	Anode present		AF	1/21/2025	N/A	J. Riggins
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Reservoir	Station A	Water	30	-	O	-		**472**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
PLEX-01	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Reservoir	Station A	Water	30	-	O	-		**NR**						AF	1/21/2025	N/A	J. Riggins
35.369856	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.831119	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**195**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
397+25	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**194**			Port. Ref.		397+25 Foreign Line Crossing - Unknown	AF	1/21/2025	N/A	J. Riggins
35.36237	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**207**			Port. Ref.		397+25 Bond Station - Unknown	AF	1/21/2025	N/A	J. Riggins
-120.808837	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**207**			Port. Ref.		418+60 Foreign Line Crossing - Valley	AF	1/21/2025	N/A	J. Riggins
	Lead #5 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-				1291	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
	Lead #6 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-				1399	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - White	CC	-	Station A	Station B	Water	30	-	O	-		**200**			Port. Ref.			AF	1/21/2025	N/A	J. Riggins
430+00	Lead #2 - Anode	1x - Red	-	-	-	-	-	-	-	-	-				**200**	Port. Ref.	Anode not connected		AF	1/21/2025	N/A	J. Riggins
35.359801	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.799179	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**200**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
461+47	Lead #1 - Foreign 1	1x - Green	-	-	-	-	-	-	-	-	-		**50**			Port. Ref.	Unknown	461+47 Foreign Line Crossing - Gas	AF	1/22/2025	N/A	J. Riggins
35.359801	Lead #2 - Anode	1x - Red	-	-	-	-	-	-	-	-	-				**50**	Port. Ref.	Anode not connected	461+47 Bond Station	AF	1/22/2025	N/A	J. Riggins
-120.799179	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**346**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
515+00	Lead #2 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**562**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.359144	Lead #3 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-				1481	Port. Ref.	Anode not connected		AF	1/22/2025	N/A	J. Riggins
-120.797544	Lead #4 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-			**562**		Port. Ref.	Anode present		AF	1/22/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	**547**				Port. Ref.		559+30 Insulating Coupling	AF	1/22/2025	N/A	J. Riggins
559+30	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	**547**				Port. Ref.		Confirm Isolation	AF	1/22/2025	N/A	J. Riggins
35.348159	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**325**			Port. Ref.		560+80 Foreign Line Crossing - Water	AF	1/22/2025	N/A	J. Riggins
-120.769263	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**325**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			**547**		Port. Ref.	Anode present		AF	1/22/2025	N/A	J. Riggins
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	**547**				Port. Ref.		579+00 Insulating Coupling	AF	1/22/2025	N/A	J. Riggins
579+00	Lead #2 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-	**582**				Port. Ref.		Confirm Isolation	AF	1/22/2025	N/A	J. Riggins
35.345316	Lead #3 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**331**			Port. Ref.		569+30 Foreign Line Crossing - Gas	AF	1/22/2025	N/A	J. Riggins
-120.764613	Lead #4 - Pipe 2	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		**332**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
	Lead #5 - Anode	1x - Black	-	-	-	-	-	-	-	-	-			**582**		Port. Ref.	Anode present		AF	1/22/2025	N/A	J. Riggins
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station A	Station B	Water	30	-	O	-		**324**			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
PLEX-02	SAI #2 - Pipe 1	1x - Pipeline	-	-	-	-	-	-	-	-	-					Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.343491	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.758687	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											

ACUREN

CITY OF SAN LUIS OBISPO
WHALE ROCK - CATHODIC PROTECTION SURVEY
CP TEST POINT DATA
2025 CP SURVEY - 30" WATERLINE

Project Name	Test Point Terminal ID	Test Point Lead ID	Client Asset Designation	Pipeline License Number	From Location	To Location	Substance	OD (in)	Length (ft)	Status	Material	Structure On (-mV_{cse})	Structure Off (-mV_{cse})	Anode On (-mV_{cse})	Anode Off (-mV_{cse})	Reference Cell Location	Field Comments	Comments	Measurement Status	Measurement Date	Interrupted Protection Source	Technician Name
Anode Test Station	Lead #1 - Pipe 1	1x - Black	CC	-	Station A	Station B	Water	30	-	O	-		615			Port. Ref.		Pump station B	AF	1/22/2025	N/A	J. Riggins
602+50	Lead #2 - Anode 1	1x - Black	-	-	-	-	-	-	-	-	-				1615	Port. Ref.	Anode not connected	ICCP system installed/ Functional	AF	1/22/2025	N/A	J. Riggins
35.342727	Lead #3 - Anode 2	1x - Black	-	-	-	-	-	-	-	-	-		542			Port. Ref.		Protects Inlet/ Outlet Header	AF	1/22/2025	N/A	J. Riggins
-120.756801	Lead #0 - Header 1	1x - Black	CC	-	Station B	Station B	Water	30	-	O	-		505			Port. Ref.		Requires adjustment	AF	1/22/2025	N/A	J. Riggins
	Lead #0 - Header 2	1x - Black	CC	-	Station B	Station B	Water	30	-	O	-		532			Port. Ref.		Headers not isolated from pipeline	AF	1/22/2025	N/A	J. Riggins
	Lead #1 - Pipe 2	1x - Black	CC	-	Station B	W. Plant	Water	30	-	O	-				1325	Port. Ref.	Anode not connected	628+80 Foreign Line Crossing - Water	AF	1/22/2025	N/A	J. Riggins
	Lead #2 - Anode 2	1x - Black																				
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP	625+46 Pipeline Exposure	AF	1/22/2025	N/A	J. Riggins
PLEX-03	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.		628+80 Foreign Line Crossing - Water	AF	1/22/2025	N/A	J. Riggins
35.340004	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.750271	Lead #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP	633+82 Pipeline Exposure	AF	1/22/2025	N/A	J. Riggins
PLEX-04	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.338695	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.738024	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP		AF	1/22/2025	N/A	J. Riggins
PLEX-05	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.333286	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.706171	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP		AF	1/22/2025	N/A	J. Riggins
PLEX-06	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.330842	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.701633	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP		AF	1/22/2025	N/A	J. Riggins
PLEX-07	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.325228	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.690598	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.	No presence of CP		AF	1/22/2025	N/A	J. Riggins
PLEX-08	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		NR			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.321939	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.684382	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
Pipeline Exposure	SAI #1 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		348			Port. Ref.	No presence of CP		AF	1/22/2025	N/A	J. Riggins
PLEX-09	SAI #2 - Pipe 1	1x - Pipeline	CC	-	Station B	W. Plant	Water	30	-	O	-		342			Port. Ref.			AF	1/22/2025	N/A	J. Riggins
35.321768	Term #0 - Empty		-	-	-	-	-	-	-	-	-											
-120.684148	Term #0 - Empty		-	-	-	-	-	-	-	-	-											

APPENDIX 4: RECTIFIER SURVEILLANCE FORM

Advanced Services Department
Tomball Office, Suite #100
14434 Medical Complex Dr
Tomball, TX 77377
United States
Phone: (936) 441-2288

CLIENT	City of San Luis Obispo
PROJECT	SLO WL - Cayucos - San Luis Obispo
JOB ID	
DESCRIPTION	Cathodic Protection Survey

RECTIFIER INSPECTION REPORT

RECTIFIER NAME:	ALPHA
RECTIFIER I.D.:	932321
RECTIFIER LOCATION:	Pump Station A - MCC
MANUFACTURED BY:	Universal Rectifiers
TYPE:	Air Cooled

GPS	Latitude	Longitude
	35°25'16" N	120°52'36" W
MODEL #	ES	
SERIAL #	932321	
MAX COARSE TAPS	3	
MAX FINE TAPS	6	

	VOLTS	AMPS	PHASE	RATED T (°F)
RECTIFIER INPUT AC:	115	1.2	1	122
RECTIFIER OUTPUT DC:	20	5		
SHUNT SIZE:	1	0.2		
SHUNT FACTOR (A/mV):	0.0002			

RECTIFIER DATA

DATE	TECHNICIAN	COARSE TAP	FINE TAP	SHUNT mV	DC VOLTS	DC AMPS	CIRCUIT RESISTANCE (Ohm)	REMARKS
2025-01-22	J. Riggins	C1	F2	0.00	7.63	0	#DIV/0!	No current output
2025-01-22	J. Riggins	C1	F6	0.00	16.39	0	#DIV/0!	No Neg. Attachment
2025-01-23	J. Riggins	C1	F6	2.30	4.29	0.5	8.58	As-Left

GROUNDBED DATA

			Reading Date					
SYSTEM TYPE	ICCP	Bed # 1						
NUMBER OF ANODES	Unknown							
SHUNT TYPE	None	Anode #	Current (A)	Current (A)	Current (A)	Current (A)	Current (A)	Current (A)
REMARKS	No information on groundbed, unknown number of anodes, no positive junction box located. ICCP protects Inlet/Outlet headers. Unknown if headers are isolated from pipeline segments.	1	NR					
		2	NR					
		3	NR					
		4	NR					
		5	NR					
		6	NR					
		7	NR					
		8	NR					
		9	NR					
		10	NR					
		Total:	0.0	0.0	0.0	0.0	0.0	0.0

OTHER CONDITIONS

		Reading Date						
		2025-01-22						
CONDITIONS (IF APPLICABLE)	Housing	Excellent						
	Hasp	Excellent						
	Gasket Seal	Good						
	Panel	Excellent						
	AC Breaker	Good						
	Transformer	Good						
	Oil Level	Not Applicable						
	Oil Color	Not Applicable						
	Oil Temperature	Not Applicable						

PICTURES

ACUREN	Advanced Services Department Tomball Office, Suite #100 14434 Medical Complex Dr Tomball, TX 77377 United States Phone: (936) 441-2288	**CLIENT**	**City of San Luis Obispo**
		PROJECT	**SLO WL - Cayucos - San Luis Obispo**
		JOB ID	
		DESCRIPTION	**Cathodic Protection Survey**

RECTIFIER INSPECTION REPORT

RECTIFIER NAME:	BRAVO
RECTIFIER I.D.:	932322
RECTIFIER LOCATION:	Pump Station B - MCC
MANUFACTURED BY:	Universal Rectifiers
TYPE:	Air Cooled

GPS	**Latitude**	**Longitude**
	35°20'33" N	120°45'23" W
MODEL #	ES	
SERIAL #	932322	
MAX COARSE TAPS	3	
MAX FINE TAPS	6	

	VOLTS	**AMPS**	**PHASE**	**RATED T (°F)**
RECTIFIER INPUT AC:	115	1.2	1	122
RECTIFIER OUTPUT DC:	20	5		
SHUNT SIZE:	1	0.2		
SHUNT FACTOR (A/mV):	0.0002			

RECTIFIER DATA

DATE	TECHNICIAN	COARSE TAP	FINE TAP	SHUNT mV	DC VOLTS	DC AMPS	CIRCUIT RESISTANCE (Ohm)	REMARKS
2025-01-22	J. Riggins	C2	F1	1.10	10.42	0.2	52.10	As-Found
2025-01-22	J. Riggins	C2	F6	1.80	16.39	0.4	40.98	Adjusted
2025-01-23	J. Riggins	C3	F1	1.80	17.36	0.7	24.80	As-Left

GROUNDBED DATA

			Reading Date					
SYSTEM TYPE	ICCP	**Bed # 1**						
NUMBER OF ANODES	Unknown							
SHUNT TYPE	None	**Anode #**	**Current (A)**	**Current (A)**	**Current (A)**	**Current (A)**	**Current (A)**	**Current (A)**
REMARKS	No information on groundbed, unknown number of anodes, no positive junction box located. ICCP protects Inlet/Outlet headers. Unknown if headers are isolated from pipeline segments.	**1**	NR					
		2	NR					
		3	NR					
		4	NR					
		5	NR					
		6	NR					
		7	NR					
		8	NR					
		9	NR					
		10	NR					
		Total:	0.0	0.0	0.0	0.0	0.0	0.0

OTHER CONDITIONS

		Reading Date						
		2025-01-22						
CONDITIONS (IF APPLICABLE)	**Housing**	Excellent						
	Hasp	Excellent						
	Gasket Seal	Good						
	Panel	Excellent						
	AC Breaker	Good						
	Transformer	Good						
	Oil Level	Not Applicable						
	Oil Color	Not Applicable						
	Oil Temperature	Not Applicable						

PICTURES

APPENDIX 5: LIST OF DRAWINGS

Drawing Number	Drawing Description
SLO-CC-0001	Conduit As-Built Station 0 to 255
SLO-CC-0002	Conduit As-Built Station 255 to 525
SLO-CC-0003	Conduit As-Built Station 555 to 810
SLO-CC-0004	Conduit As-Built Station 810 to 903 and detail drawings
SLO-CC-0005	Pump Station As-Built - Upgrade

APPENDIX 6: CATHODIC PROTECTION PHOTO LOG

City of San Luis Obispo

Whale Rock

Cathodic Protection Survey

2025-01-20

ACUREN

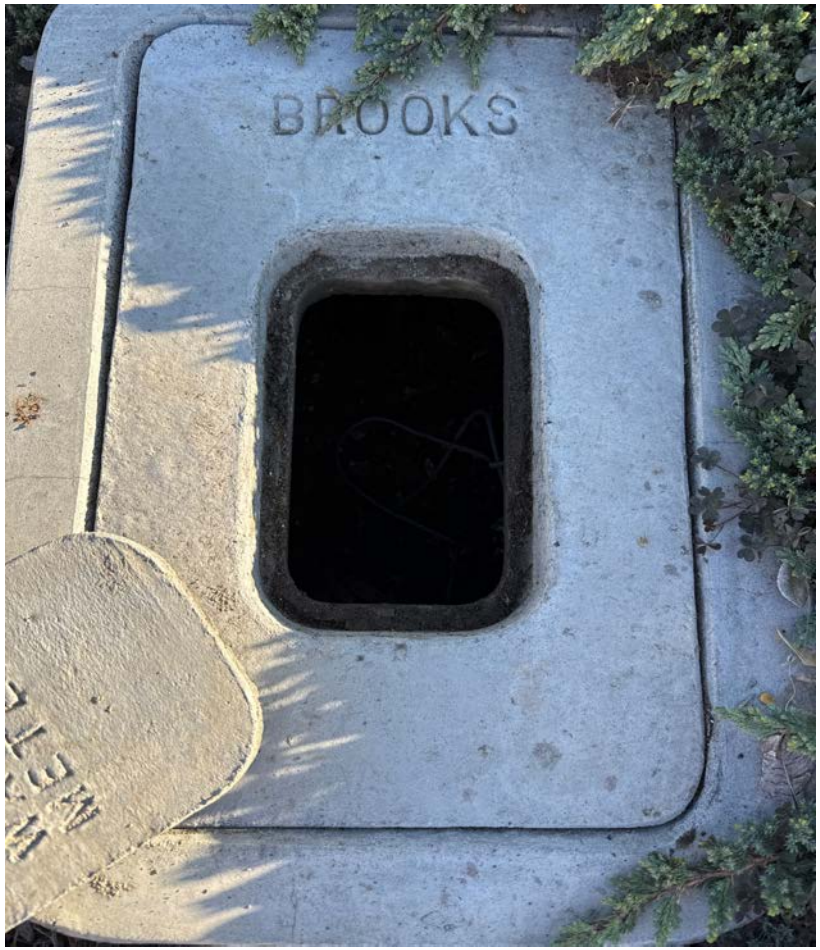
2025 CP Survey – TP 10+00

ACUREN

2025 CP Survey – TP 48+00

ACUREN

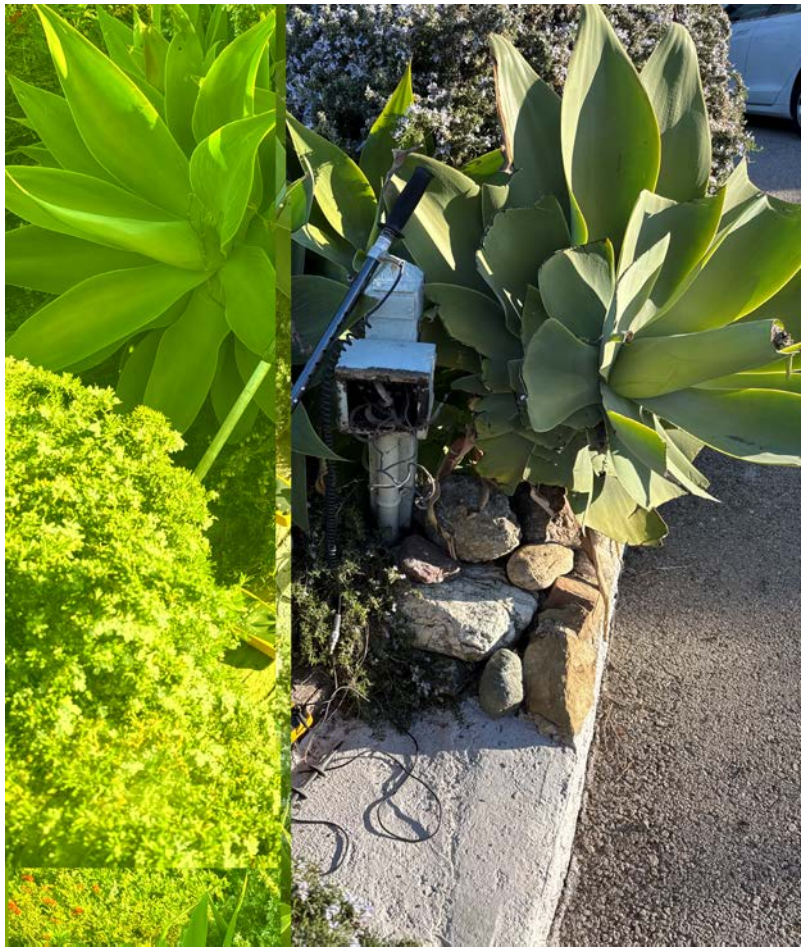
2025 CP Survey – TP 63+00



2025 CP Survey – TP 65+85

ACUREN

2025 CP Survey – TP 71+30



ACUREN

2025 CP Survey – TP 96+30

ACUREN

2025 CP Survey – TP 130+00

ACUREN

2025 CP Survey – TP 139+00

2025 CP Survey – TP 143+00

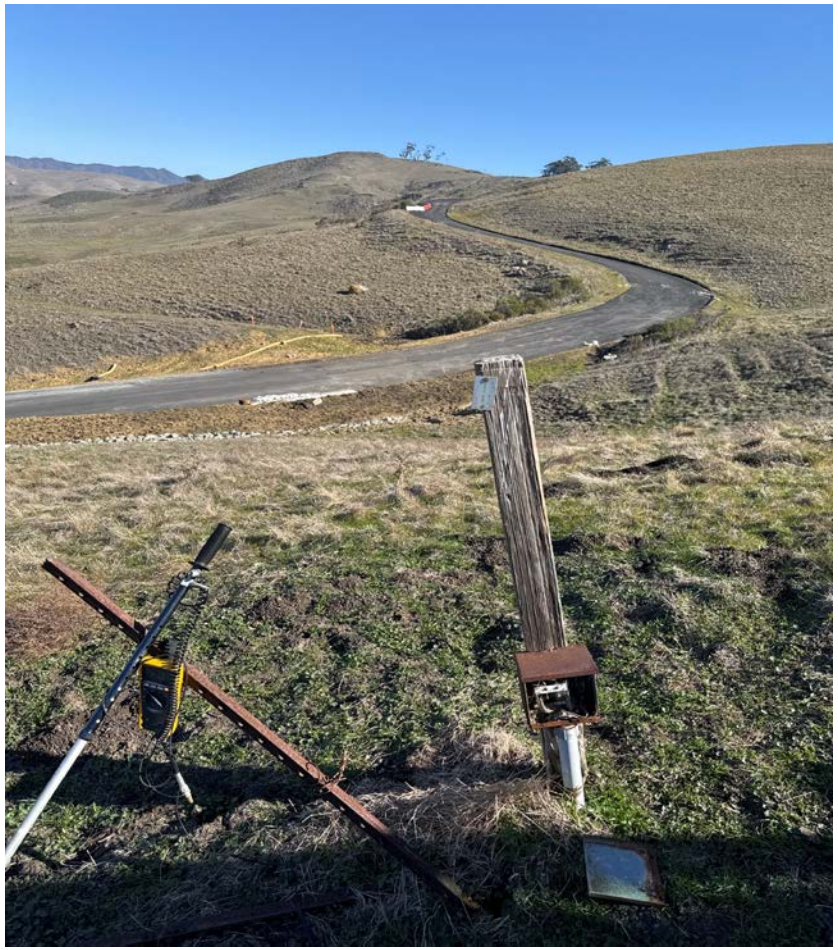
ACUREN

2025 CP Survey – TP 157+00

ACUREN

2025 CP Survey – TP 160+00

2025 CP Survey – TP 165+00



ACUREN

2025 CP Survey – TP 171+00

2025 CP Survey – TP 176+00

ACUREN

2025 CP Survey – TP 185+25

ACUREN

2025 CP Survey – TP 207+00

ACUREN

2025 CP Survey – TP 217+39.5

2025 CP Survey – TP 227+00

ACUREN

2025 CP Survey – TP 257+10

ACUREN

2025 CP Survey – TP 295+05

2025 CP Survey – TP 310+90

ACUREN

2025 CP Survey – TP 313+90

ACUREN

2025 CP Survey – TP 358+00

ACUREN

2025 CP Survey – TP 397+25

ACUREN

2025 CP Survey – TP 430+00

2025 CP Survey – TP 461+47

ACUREN

2025 CP Survey – TP 515+00

ACUREN

2025 CP Survey – TP 559+30

2025 CP Survey – TP 579+00

ACUREN

2025 CP Survey – Pump Station A

ACUREN

2025 CP Survey – Pump Station A

ACUREN

2025 CP Survey – Pump Station B

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 5 – Alternative Pipeline Replacement Study

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Noah Evans, Whale Rock Supervisor

SUBJECT: Whale Rock Dam, Pipeline Replacement Study

RECOMMENDATIONS
No action is requested by the commission for this agenda item.

DISCUSSION

Background
As previously authorized during the 2023 Whale Rock Commission meeting, the Pipeline Replacement Study was initiated to explore various options for renewing the Whale Rock pipeline, which has been in service for over six decades. The Study provides a roadmap for maintaining the integrity of the Whale Rock water delivery system by providing pipeline renewal and replacement recommendations. The study is nearly complete, and staff wish to update the Commissioners on its contents.

WHALE ROCK PIPELINE REPAIR

As part of this project, HDR Engineering was tasked with reviewing the condition of the existing pipeline from the 2019 Pipeline Inspection Report and recommending suitable replacement strategies. The study provides pipeline replacement options, cost analysis, and an implementation timeline. Understanding the cost of pipeline renewal will allow Commission members to prepare for increases in future Whale Rock CIP contributions, which will ultimately be required to keep the pipeline in proper working order.

Pipeline Replacement Study Recommendations
The recommendations from the Pipeline Replacement Study are multi-phased and are as follows:

1. **Execute Alternative 3**: This involves replacing the defective sections of pipeline in the area of the golf course (223 feet), as was previously approved by the commission. In addition, HDR recommends replacing one additional section of piping to the east of the golf course.

2. **Reinspect the Pipeline**: After completing the initial repairs, it is recommended that staff conduct a thorough reinspection of the pipeline to assess its condition

and identify any further necessary actions. This inspection is shown within the Whale Rock CIP schedule to occur in 2028.

3. **Implement Alternative 6**: Following the reinspection, proceed with a 100% pipeline replacement over a specified period. This ensures that all compromised sections are effectively addressed.

The study examined different methods for pipeline replacement. These methods included full replacement with a new line, using the existing line as a sleeve for a smaller diameter line, and adding an internal liner to the existing pipe. The recommendation from HDR is to replace the entirety of the pipeline with a new line. Staff will return to the Whale Rock Commission at a future meeting with more information regarding how the timeline in which the pipeline would be replaced (replacing all of the pipeline at once versus replacing smaller sections annually until full replacement is completed) .

Engineering estimates for full scale pipeline replacement and associated costs can be seen in Table 1 below. Staff have not identified which replacement timeline is most efficient for pipeline replacement at this time but will coordinate with staff from member agencies to develop a schedule for replacement that minimizes impacts to each participating agency.

Table 1 – Whale Rock Pipeline Replacement Timeline Options

Option	Replacement (MI/YR)	Replacement (%/YR)	# of YR for 100% Replacement	Construction OPCC ($/YR)	Project OPCC ($/YR)
1	0.46	2.86	35.0	$1.99M	$2.85M
2	0.53	3.33	30.0	$2.33M	$3.33M
3	0.64	4.00	25.0	$2.79M	$3.99M
4	0.80	5.00	20.0	$3.49M	$5.00M
5	0.93	5.81	17.2	$4.06M	$5.80M
6	1.07	6.67	15.0	$4.65M	$6.65M
7	1.33	8.33	12.0	$5.82M	$8.31M
8	1.60	10.00	10.0	$6.98M	$9.98M
9	3.20	20.00	5.0	$13.95M	$19.95M
10	16	100.00	1.0	$69.77M	$99.77M

ENVIRONMENTAL REVIEW

No environmental review is required to update the Commissioners on this study's progress.

FISCAL IMPACT

Staff is not requesting that the Commissioners consider funding pipeline renewal at this time. Cost estimates within this staff report should be as a rough estimate of financial commitments that commission members may be requested to make as part of a full-scale pipeline replacement project.

ALTERNATIVES

The Commission may direct staff to further study pipeline rehabilitation options or cease pipeline rehabilitation and not bring future pipeline renewal projects to the Commission for consideration. These alternatives are not recommended as staff have determined that the pipeline study is accurate, and the Whale Rock pipeline will become less reliable over time.

Attachments:

A - Whale Rock Dam Pipeline Replacement Study

Whale Rock Dam –Pipeline Replacement Study

City of San Luis Obispo

Alternative Analysis Report

January 2, 2025

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Contents

Figures

Tables

Appendices

1 Purpose

The purpose of the alternative analysis report (report) is to describe potential projects to replace and/or rehabilitate the aging Whale Rock Dam Pipeline (pipeline) infrastructure. Six (6) alternates are provided with their opinion of probable construction costs (OPCC), and timeline (immediate, intermediate, and/or extended).

2 Background

The 30 IN pipeline was installed in 1959, 65 years old, and conveys raw water from Whale Rock Reservoir to the San Luis Obispo Treatment Plant for a total distance of approximately 16 miles northeast of San Luis Obispo, California, Figure 1. The pipeline is owned by the Whale Rock Commission (Commission), consisting of the California Polytechnic State University (Cal Poly), California Men's Colony, and the City of San Luis Obispo (City).

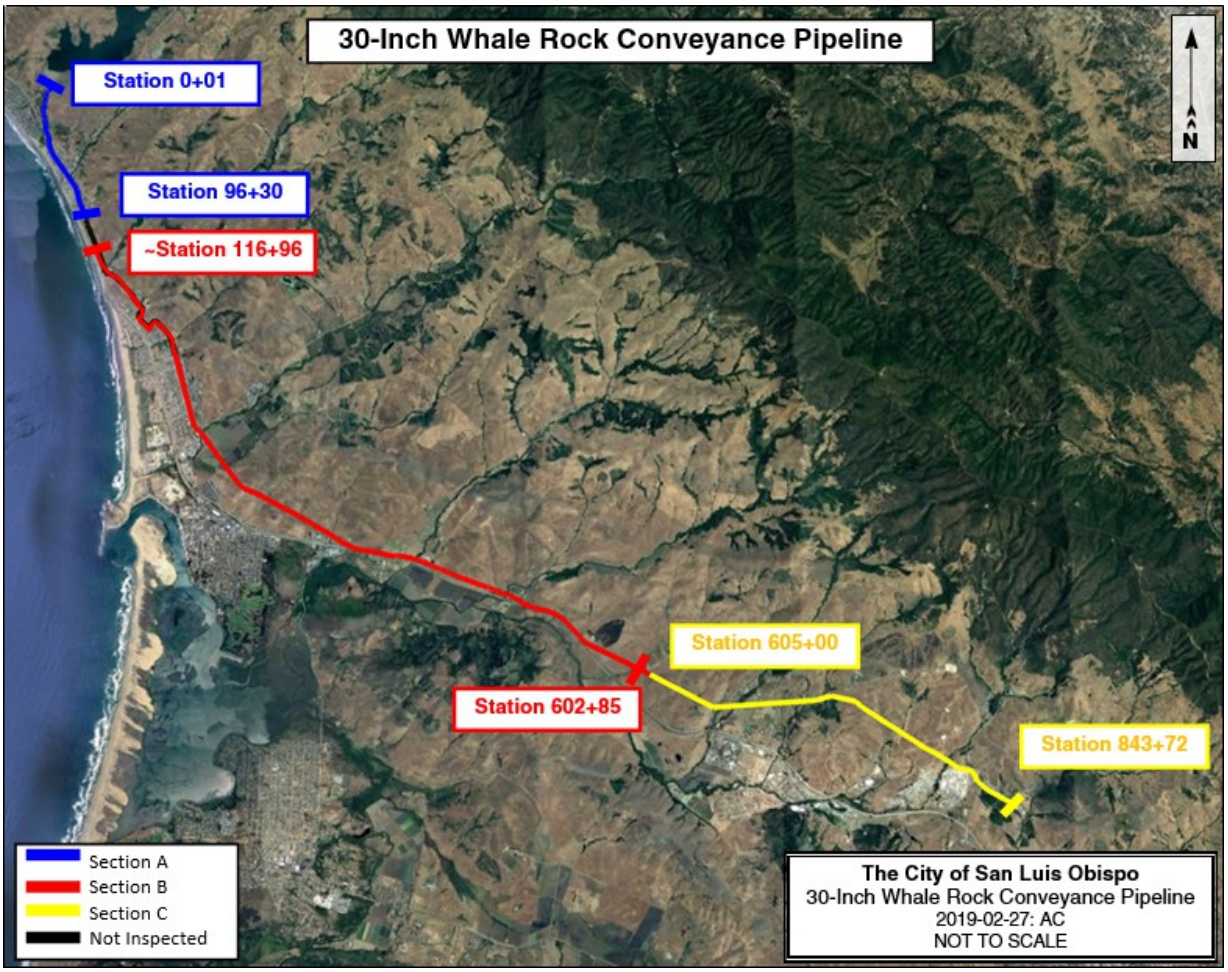


Figure 1. Pure Technologies pipeline inspection limits

The pipeline is comprised of two pipeline materials:

- AWWA M11 welded steel pipeline (WSP) at approximately 18,321 FT or 21.9% of total length; and
- AWWA C-303 bar wrapped concrete cylinder pipeline (BWP) at approximately 65,523 FT or 78.1% of total length

Due to the pipeline age, the City procured Pure Technologies, a Xylem brand, in October 2018 to conduct pipeline non-destructive interior testing with 99.0% tested, Table 1. Pure Technologies' free-swimming electromagnetic inspection platform robot inspected, located, and identified pipe sections with broken bar wraps, localized cylinder wall loss, broken bar wraps and localized cylinder wall loss, and other anomalies not aforementioned.

Table 1. Summary of pipeline materials, lengths, and lengths between stops

Section	Pipe Material	Start Station	End Station	Distance (Mile)
A	BWP, 30-IN	0+01	96+30	1.83
Pump Station	Unknown	96+30	116+96	0.39
B	Steel, 30-IN	116+96	227+00	2.34
	BWP, 30-IN	227+00	295+05	1.29
	Steel, 30-IN	295+05	313+00	0.34
	BWP, 30-IN	313+00	387+46	1.42
	Steel, 30-IN	387+46	402+05	0.28
	BWP, 30-IN	402+05	559+30	2.98
	Steel, 30-IN	559+30	579+00	0.38
	BWP, 30-IN	579+00	602+85	0.45
Pump Station	Unknown	602+85	605+00	0.04
C	BWP, 30-IN	605+00	843+72	4.51
Total Distance				15.82 (inspected) 16.25 (total length)

Note(s):

1. The piping portions of the pump stations were not inspected.

From Pure Technologies' Pipeline Condition Assessment Report Appendix B, Pure Technologies' inspection platform accuracy decreases and uncertainties increase with the following occurrences:

- Change in pipeline; and
- Electromagnetic data noise

Additionally, Pure Technologies results did not quantify the following:

- Wall loss depths; and

- Quantity of broken bar wrap per pipeline stick

Lastly,

- In 2021, City replaced approximately 60-FT of pipeline near STA 368+35 due to corroded cylinder wall failure. This defect was not detected by Pure Technologies in 2018;
- In 2023, City replaced approximately 17-FT of pipeline at STA 583+64 due to failed bar-wrapping. This defect was detected by Pure Technologies in 1998; and
- Pure Technologies inspection is six years old and out of date. Pure Technologies recommends an inspection frequency of every five years

Table 2. Summary of pipeline defects

Number of Pipe	Include Uncertainties	Include Uncertainties
Inspected	100%	83,844 FT
w/ Broken Bar Wraps	0.19%	160 FT
w/ Localized Cylinder Wall Loss	0.57%	481 FT
w/ Broken Bar Wraps and Localized Cylinder Wall Loss	0.19%	160 FT
w/ Localized Anomalies Different than Broken Bar Wraps and Cylinder Wall Loss	0.36%	301 FT
w/ less certainty due to flow changes	0.80%	671 FT
Pump station sections (no data)	2.72%	2,281 FT
Number of Total Defects (excluding PS sections)	2.11%	1,773 FT

Adjusted for uncertainties and uninspected in Table 2, the total pipeline uncertainty is approximately 1,773 FT or 2.11% of the pipeline. However, because of the undetected STA 368+35 pipeline failure, the actual uncertainty might be higher than 2.11%. Therefore, HDR has the following disclaimers:

1. HDR's analysis is based on Pure Technologies October 2018 inspection and assumes the following:
    a. 2018 data as-is is accurate in 2024
    b. The pipeline has not experience additional deteriorations since October 2019
2. Pipeline hydraulic transient, water hammering, pressure fluctuations, surge pressures, thrusts, etc. are not issues;
3. Seismic events / earthquake ground shaking resulting in pipeline failures are not issues;
4. No bypass or backup will be required during pipeline replacement and/or rehabilitation; and
5. No environmental or culturally sensitive areas in the pipeline alignment for pipeline replacement and/or rehabilitation due to previous ground disturbance

The pipeline defects from Table 2 are further summarized in Table 3 to Table 7.

Table 3. AWWA C-303 BWP broken bar wrap, quantity 10

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class	Break Positional Range (FT from Start STA)
36	93	11+04	11+36	32	BWP	230	15.0-18.0
2511	1056	583+64	583+96	32	BWP	320	5.5-8.5
3262	737	686+59	686+90	32	BWP	340	6.5-8.5
3263	736	686+90	687+22	32	BWP	320	2.5-6.0
3264	735	687+22	687+54	32	BWP	340	2.5-5.5; 11.5-14.5
3266	733	687+86	688+18	32	BWP	340	3.5-5.5
3496	504	759+63	759+95	32	BWP	230	2.0-4.0
3545	455	774+58	774+89	32	BWP	230	2.5-4.0
3649	350	806+79	807+11	32	BWP	230	22.0-25.0
3662	337	810+93	811+25	32	BWP	230	22.5-27.0

Table 4. Localized cylinder wall loss, quantity 15

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
279	2044	87+71	88+03	32	BWP	230-B
1085	N/A	145+87	146+23	36	STEEL	N/A
1087	N/A	146+58	146+94	36	STEEL	N/A
1189	N/A	176+82	177+17	36	STEEL	N/A
1414	160	237+00	237+32	32	BWP	380
1501	1959	264+53	264+85	32	BWP	400
1508	1952	266+77	267+09	32	BWP	400
1532	1928	274+44	274+76	32	BWP	380
1775	1736	351+91	352+08	17	BWP	230
2480	N/A	573+31	573+66	36	STEEL	N/A
3061	936	622+91	623+23	32	BWP	460
3066	932	624+18	624+50	32	BWP	480
3067	931	624+50	624+82	32	BWP	480
3068	930	624+82	625+14	32	BWP	480
3260	739	685+95	686+27	32	BWP	340

Table 5. AWWA C-303 BWP broken bar wrap and localized cylinder wall loss, quantity 5

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
3262	737	686+59	686+90	32	BWP	340
3263	736	686+90	687+22	32	BWP	320
3264	735	687+22	687+54	32	BWP	340
3266	733	687+86	688+18	32	BWP	340
3496	504	759+63	759+95	32	BWP	230

Table 6. Localized Anomalies Different than Broken Bar Wraps and Cylinder Wall Loss, quantity 6

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
194	2128	60+70	61+02	32	BWP	230-B
241	2082	75+71	76+03	32	BWP	230-B
3034	963	615+40	615+72	32	BWP	400
3437	563	741+59	741+91	32	BWP	240
3464	N/A	749+88	750+29	41	STEEL	N/A
3523	477	767+89	768+21	32	BWP	300

Table 7. Less certainty, quantity 22

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
3397	603	728+89	729+21	32	BWP	230
3398	602	729+21	729+53	32	BWP	230
3541	459	773+31	773+62	32	BWP	230
3542	458	773+62	773+94	32	BWP	230
3543	457	773+94	774+26	32	BWP	230
3715	284	826+50	826+82	32	BWP	230
3716	283	826+82	827+14	32	BWP	230
3738	261	833+86	834+17	32	BWP	230
3739	260	834+17	834+49	32	BWP	230
3740	259	834+49	834+81	32	BWP	230
3741	258	834+81	835+13	32	BWP	230
3742	257	835+13	835+45	32	BWP	230
3743	256	835+45	835+77	32	BWP	230
3744	255	835+77	836+09	32	BWP	230
3745	254	836+09	836+41	32	BWP	230
3746	253	836+41	836+73	32	BWP	230
3747	252	836+73	837+05	32	BWP	230
3748	251	837+05	837+37	32	BWP	230
3749	250	837+37	837+44	9	BWP	230
3750	249	837+44	837+67	32	BWP	230
3751	248	837+67	837+89	23	BWP	500
3752	247	837+89	838+21	32	BWP	500

3 Design Considerations

3.1 Geotechnical

No geotechnical data was provided to support the pipeline alternative analysis. The assumption will be to rehabilitate or replace the pipeline existing alignment potentially reducing the need for geotechnical data. For pipeline replacement, bedding and pipeline embedment material will be imported, and excavated soil will be used for trench backfill. To minimize environmental impacts, the trenches will be excavated vertically with the use of trench boxes. For rehabilitation, the launch and receiving pits be shored with sheet piles, which will be specified by the designers and designed by the contractor's shoring sub. The pipeline is installed in paved and unpaved areas and the condition of the surface will be replaced to its original condition.

3.2 Mechanical

3.2.1 Replacement Pipeline Material

Based on discussions with the City, BWP is not a preferred material for the new pipeline segments based on maintenance and replacement issues. The following materials are potential replacement alternatives:

- WSP with cement mortar lining and coating. Cement mortar will be applied in the field at all joints on the interior and exterior of the pipe;
- Plastic without additional cathodic protection. Use of plastic pipe would potentially cause discontinuities in the existing cathodic protection system requiring bridging of the currents; and
- Ductile iron pipeline (DIP) with cement mortar lining and coating. DIP has better corrosion protection and material costs but heavier than WSP. Additionally, DIP has an intrinsic +100 pound per square inch (PSI) surge protection over its pressure class

The new pipeline material internal diameter should be equal or greater than the existing 30-IN diameter. A 30-IN nominal diameter plastic pipeline will have an inside diameter smaller than 30-IN potentially effecting hydraulic performances negatively. WSP is more costly than DIP for similar performance. Therefore, DIP was selected as the alternative analysis pipeline replacement material. However, the other replacement materials can be selected during design.

3.2.2 Rehabilitation Pipeline Material

Pipeline rehabilitation requires the original pipeline as the host. Rehabilitation can either be liner or structural type. Rehabilitation requires bonding to the host pipeline. Rehabilitation liner is thinner requiring the host pipeline to be structurally sound. A structural rehabilitation is thicker, becomes the structural member, and utilized when the host pipeline is corroded, cracked, broken, and/or otherwise structurally compromised with the host pipeline acting as the conduit to install the structural liner. The following materials are potential rehabilitation alternatives for non-structural liners and full structural rehabilitation:

- Cured-in-place pipe (CIPP) for structural and non-structural rehabilitation

- Slip-lining for structural and non-structural rehabilitation
- Close-fit lining / die-draw lining / roll-down lining / fold-and-form lining for non-structural rehabilitation
- Spiral wound lining for non-structural rehabilitation
- Centrifugal cast concrete pipe lining (CCCPL) for non-structural rehabilitation
- Geopolymer lining for non-structural rehabilitation
- Manufactured-in-place composite pipe (MICP) for non-structural rehabilitation

CIPP liner rehabilitations might reduce inside diameters by 2 to 3-IN to 27 to 28-IN inside diameter. Whereas, CIPP structural rehabilitations might reduce inside diameters by 4 to 5-IN to 25 to 26-IN inside diameter. For this alternative analysis, CIPP is assumed as the choice for rehabilitation. Approximately 30-IN outside diameter (OD) CIPP installation span is limited to approximately 400-FT or less between launching and receiving pits and limited to 1-90 degree elbow bend or 2-45 degree elbow bends. However, other rehabilitation alternatives can be selected during design.

For slip lining rehabilitation, a smaller diameter carrier pipeline is inserted into the existing larger 30-IN diameter casing pipeline with the annual space between the carrier and casing pipelines filled with grout or controlled low-strength material (CLSM). The slip lining carrier pipeline can be either a lining if the casing pipeline is structurally sound or structural if the casing pipeline is not structurally sound. Slip lining cannot accommodate elbow bends and will require launching pits at every elbow bend. Depending on the slip lining pipeline diameter, launching pits might be required at the casing pipeline joint deflections.

3.2.3 Pipe Pressure

Minimum pipe pressure should meet or exceed the existing pipeline pressure class that ranges from 230 to 500 PSI. WSP and DIP can meet or exceed the required pressures, whereas, plastic pipeline and rehabilitation (liner and structural) might not meet the higher required pressures.

Because plastic pipeline and rehabilitation (liner and structural) reduce pipeline inside diameter, reduce hydraulic performance, and do not meet higher pressures, they have limited applications and will not be recommended for the alternative analysis.

Refer to the appendix for additional pressure and hydraulic discussions.

3.2.4 Appurtenances

The pipeline appurtenances including but not limited to isolation valves, air release valves (ARVs), combination ARVs, blowoffs (BOs), and cathodic test stations will be replaced as required with the pipeline.

3.2.5 Methodology

The provided background data was reviewed the pipeline as-built drawing overlaid onto Google Earth to determine the approximate pipeline alignment and appurtenance location, Figure 2 and Figure 3, respectively.

Figure 2. Pipeline as-built drawing overlaid onto Google Earth to approximate pipeline alignment

Figure 3. Approximate pipeline alignment and appurtenance location recreated in Google Earth

The as-built drawing data was inserted into worksheet, compared with Pure Technologies data, and analyzed. All pipeline rehabilitation and replacement materials and installation methods were analyzed with the following criteria for evaluating rehabilitation or replacement methods:

- To maintain or improve performance (hydraulics, corrosion resistance, etc.);
- To extend pipeline estimated useful life (EUL) / remaining useful life (RUL);
- To prevent unnecessary pipeline breaks;
- To identify most cost-effective methods to rehabilitate or replace including accessibility; and
- To increase confidence in decision making

3.2.6 Opinion of Probable Construction Cost (OPCC)

An AACE Class 5 estimate (-50% to +100% accuracy range) was developed for the pipeline alternatives. Quantities were prepared based on the anticipated construction method and sequence. Costs were applied based on AACE methodology for the Class 5 estimate level. The detailed breakdown of costs is included in Appendix A.

Additional soft costs are included in Appendix A to provide additional indirect costs that may be anticipated, including:

- Estimate and design contingency reflective of design
- Market volatility contingency due to supply chain issues, labor shortages, fuel prices, COVID, inflation
- Construction risk contingency and post-award changes
- Non-contract costs such as permitting, right of way and construction management

The total project cost or total capital cost is the OPCC including soft costs:

- Engineering design

- Engineering services during construction
- Construction management
- Permitting

4 Alternatives

This section summarizes the six (6) alternatives:

1. Alt 1: Do Nothing
2. Alt 2: Golf Course Pipeline Project
3. Alt 3: Replace All Broken Bar Wraps and Localized Cylinder Wall Loss
4. Alt 4: Alt 3 + Broken Bar Wrap
5. Alt 5: Alt 4 + Localized Cylinder Wall Loss
6. Alt 6: 100% Pipeline Replacement

4.1 Alt 1: Do Nothing

The Alternative 1 Do Nothing Alternative is reactive repairing pipeline section as it fails. This is similar to the current practice. The historical repair costs can be adjusted for inflation and applied for budgetary planning purposes. However, this will not be an accurate estimate going forward. Pipeline material EUL is summarized in Table 8.

Table 8. Pipeline material EULs

Material	Estimated Useful Life (EUL)
Welded steel pipe (WSP)	50 – 70 YR
AWWA C303 bar wrapped pipe (BWP)	75-100 YR
Ductile iron pipe (DIP)	60-100+ YR
Polyvinyl chloride (PVC)	70 YR
High-density polyethylene (HDPE)	50-100 YR

The existing pipeline is approximately 65 years old. Therefore, the WSP RUL is approximately 10 to 35 years or (75 – 65) to (100 – 65). The WSP RUL is approximately -15 to +5 years. With good soil conditions / environment, corrosion protection, and maintenance, the pipeline can last much longer than their statistical EULs. However, as the pipeline ages and breaks, the breaks will become more frequent, Figure 4.

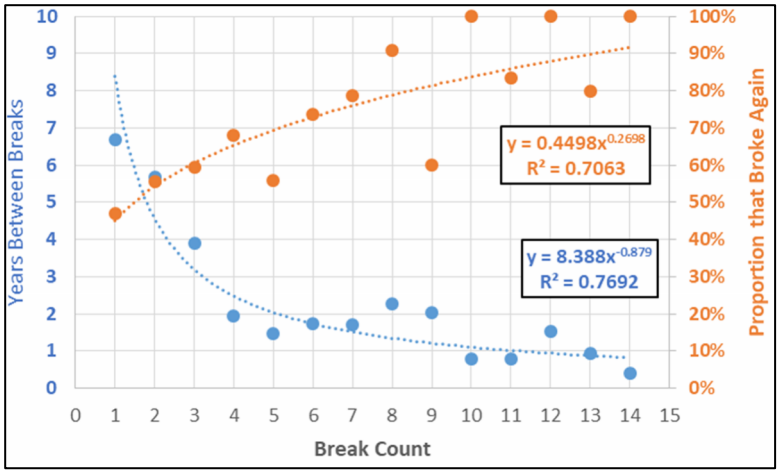


Figure 4. Relationship between historical break count and future performance

Figure 4 quantifies the relationship between historic break count and future performance for a particular pipeline by calculating the proportion of pipeline that break again and the average duration between subsequent breaks. This data indicates that as a pipeline experiences more breaks, the duration until the next break becomes shorter. Both trends support the theory that historic break count is a good indicator of future performance of a pipeline with the average break rate in California and Nevada at 9.7 annual breaks per 100 miles per Folkman's 2018 report titled Water Main Break Rates in the USA and Canada: A Comprehensive Study. Average durations between subsequent breaks shown in blue are two breaks in 6.7 years, four breaks in 3.9 years, and 11 breaks in 0.78 years. The proportions that will break again shown in orange are 47% after one break, 56% after two breaks, and 100% after ten breaks.

Therefore, the Do Nothing Alternative is not viable due to the unpredictability, potential runaway high maintenance and potential property damage costs, loss of service, and low of confidence by the public and regulatory agencies. This alternative is not recommended.

4.2 Alt 2: Golf Course Pipeline Project

The Alternative 2 Golf Course Pipeline Project Alternative implements the Whale Rock Dam Transmission Pipeline Replacement Project (STA 685+00 to 690+00) 100% Design Project, Figure 5. The construction project was previous put on hold for various reasons.

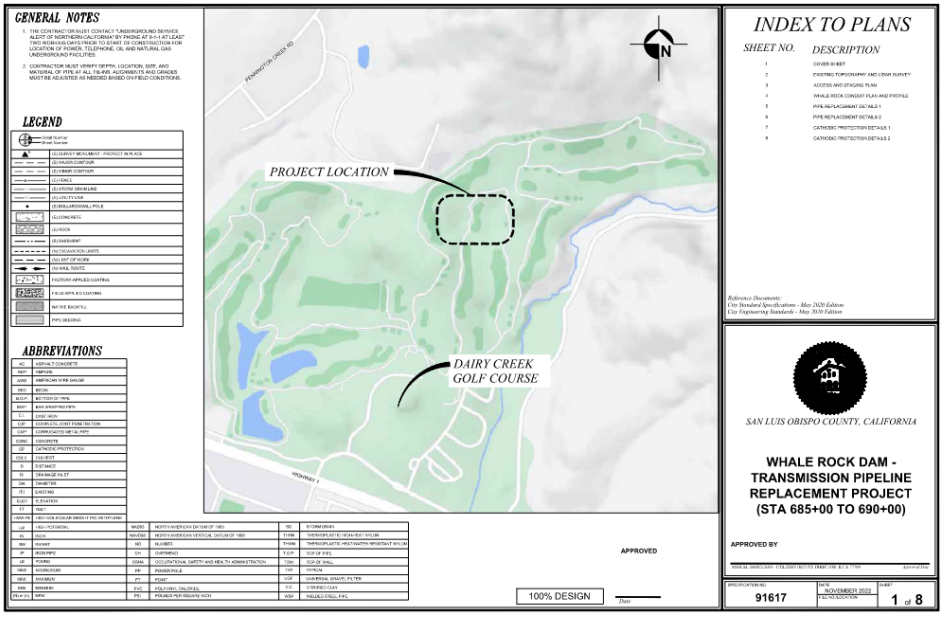


Figure 5. Golf course pipeline project

This alternative replaces pipeline sections that have broken bar warps and localized cylinder wall loss as previously identified by Pure Technologies, Table 9. The replacement total length of 223-FT is greater than the identified length of 128-FT because the intermediate pipeline sections and ends are also replaced, Figure 6. Applicable appurtenances are included in this alternative.

Table 9. Pure Technologies identified broken bar wrap and localized cylinder wall loss at golf course

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
3262	737	686+59	686+90	32	BWP	340
3263	736	686+90	687+22	32	BWP	320
3264	735	687+22	687+54	32	BWP	340
3266	733	687+86	688+18	32	BWP	340

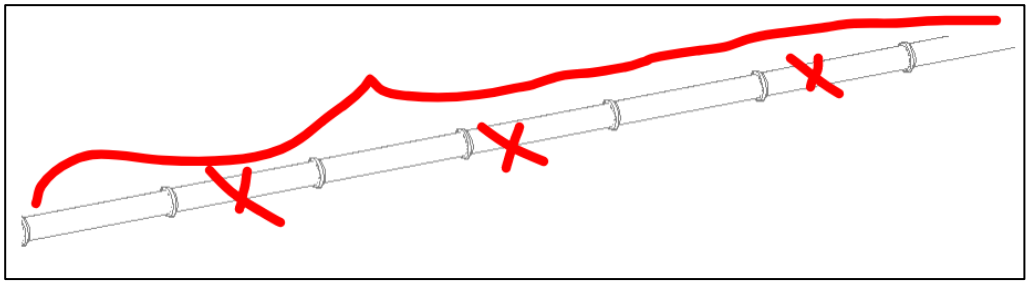


Figure 6. Sample sketch of pipeline replacement section with broken pipeline identified with red “X”. The intermediate and end pipeline sticks will be replaced in addition to the broken pipelines.

Per 2023 Golf course pipeline project OPCC is approximately $1,071,000. With a 6% annual escalation, the 2024 OPCC is approximately $1,136,000. However, through this OPCC effort, the

2024 total construction OPCC is approximately $768,000 instead of $1,136,000. There total project OPCC is approximately $1.11M.

4.3 Alt 3: Replace All Broken Bar Wraps & Localized Cylinder Wall Loss

The Alternative 3 Replace All Broken Bar Wraps & Localized Cylinder Wall Loss is Alternative 2 with one additional broken bar wrapped and localized cylinder wall loss pipeline section. This alternative requires interior pipeline reinspection because reinspection is recommended every five (5) years and because there had been an additional unidentified break.

The alternative analysis pipeline replacement priority is summarized in Table 10.

Table 10. Pipeline replacement priority

Priority	Description
1	Broken bar wraps and localized cylinder wall loss
2	Broken bar wraps
3	Cylinder wall loss

Alternative 3 adds one additional location at approximately 100-FT of pipeline to Alternative 2, Table 11.

Table 11. Pure Technologies identified broken bar wrap and localized cylinder wall loss for Alternative 3

Ref #	Piece #	Start STA	Stop STA	PL L (FT)	PL Mat	Reported Class
3262	737	686+59	686+90	32	BWP	340
3263	736	686+90	687+22	32	BWP	320
3264	735	687+22	687+54	32	BWP	340
3266	733	687+86	688+18	32	BWP	340
3496	504	759+63	759+95	32	BWP	230

The 2024 Construction and Project OPCCs are approximately $851,200 and $1,217,200, respectively.

4.4 Alt 4: Alt 3 + Broken Bar Wrap

Alternative 4 includes all broken bar warps and localized cylinder wall loss and broken bar warps damaged pipeline sections, Table 3 and Table 5 plus five locations and approximately 623-FT. This alternative requires interior pipeline reinspection because reinspection is recommended every five (5) years and because there had been an additional unidentified break. The 2024 Construction and Project OPCCs are approximately $1.10M and $1.57M, respectively.

4.5 Alt 5: Alt 4 + Localized Cylinder Wall Loss

Alternative 5 includes all broken bar warps and localized cylinder wall loss, broken bar warps, and cylinder wall loss damaged pipeline sections, Table 3 to Table 5 plus fifteen locations and approximately 2,623-FT. This alternative requires interior pipeline reinspection because reinspection is recommended every five (5) years and since there had been an additional unidentified break. Alternative 5 includes. The 2024 Construction and Project OPCCs are approximately $2.76M and $3.94M, respectively.

4.6 Alt 6: 100% Pipeline Replacement

Alternative 6 eventually replaces 100% of the pipeline based on the criticality identified in Table 10 and budget constraints. This alternative requires interior pipeline reinspection because reinspection is recommended every five (5) years and since there had been an additional unidentified break. After reinspection, the pipeline section will be prioritized to develop a five-to-ten-year capital improvement plan (CIP) for pipeline replacement. Near the end of the CIP, the pipeline again will be reinspected to prioritize remaining pipeline replacement. This repeats until 100% of the pipeline will be replaced.

Referring to Table 12, the options refer to the quantity of pipeline replacement per year and the number of year for 100% pipeline replacement. For Alt 6 Option 3, assuming there is an annual $2.79M budget and $3.99M for construction and project, respectively. Under Alt 6 Option 3, 100% of the pipeline will be replaced in 25-years and 0.64 miles per year or 4.00% per year of the total pipeline length.

Table 12. 100% pipeline replacement as a function of total replacement years

Option	Replacement (MI/YR)	Replacement (%/YR)	# of YR for 100% Replacement	Constr OPCC ($/YR)	Project OPCC ($/YR)
1	0.46	2.86	35.0	$1.99M	$2.85M
2	0.53	3.33	30.0	$2.33M	$3.33M
3	0.64	4.00	25.0	$2.79M	$3.99M
4	0.80	5.00	20.0	$3.49M	$5.00M
5	0.93	5.81	17.2	$4.06M	$5.80M
6	1.07	6.67	15.0	$4.65M	$6.65M
7	1.33	8.33	12.0	$5.82M	$8.31M
8	1.60	10.00	10.0	$6.98M	$9.98M
9	3.20	20.00	5.0	$13.95M	$19.95M
10	16	100.00	1.0	$69.77M	$99.77M

4.7 Discussion

Table 12 and Appendix A opinion of probable construction costs (OPCCs) are based on traditional cut-and-cover.

Detailed rehabilitation method (CIPP and slip lining) OPCCs are not provided because of unknown variables required to develop reasonable accurate OPCCs in the current alternative analysis phase included acceptable flow capacity reductions resulting from rehabilitation methods. At a high level, the material cost for 30-IN OD non-structural lining is similar to new 30-IN diameter pipeline per linear foot. Whereas the material cost for 30-IN OD structural lining is more than new 30-IN diameter pipeline per linear foot. The excavation savings along the cut-and-cover pipeline alignment are offset by the relatively large CIPP launch and receiving pits at approximately every 400-FT. Additionally, CIPP equipment mobilization and demobilization cost is approximately $300,000. Therefore, Alternatives 1, 2, and 3 construction OPCCs are higher for CIPP (non-structural and structural) than traditional cut-and-cover. Alternatives 5 and 6 CIPP and cut-and-cover OPCCs would be more similar to each other.

Slip ling and CIPP OPCCs would be more similar. However, slip lining will significantly reduce flow rates due to the inside diameter (See Appendix B Figure 11) and potentially requiring excavation as every elbow fittings; therefore, slip lining is not recommended for pipeline rehabilitation. Flow capacity reductions of transmission mains are generally not preferred in the industry. Therefore, the traditional cut-and-cover is preferred for the alternative analysis especially with a phased approach to replace 100% of the pipeline over time.

4.8 Summary

Table 13 summarizes the pipeline replacement alternatives by method of cut-and-cover.

Table 13. Pipeline replacement alternatives summary

Alt	Interior Reinspection	# of Location [1]	Length [2] (FT)	OPCC Construction	OPCC Project
1	NA	NA	NA	Unknown	Unknown
2	NA	1	223	$777,800	$1.11M
3	√	2	323	$851,200	$1.22M
4	√	5	623	$1.10M	$1.57M
5	√	15	2,623	$2.76M	$3.94M
6 [3]	√	Varies	3,379	$2.79M/YR	$3.99M/YR
6 [4]	√	Varies	323 (Yr 1) & 3,362 (Yr 2-26)	$851,200 (Yr 1) & $2.76M/YR (Yr 2-25)	$1.22M (Yr 1) & $3.94M/YR (Yr 2-26)

Notes:
1. Distinct locations of pipe segments
2. Approximate length
3. Assumes 100% pipeline replacement in a period of 25 years. The 100% OPCC is amortized over the replacement period.
4. Assumes 100% pipeline replacement period of 25 years after executing Alt 3 in year one

5. Alternatives: Alt 1-Do Nothing; Alt 2-Golf Course Pipeline Project; Alt 3-Replace All Broken Bar Wraps and Localized Cylinder Wall Loss; Alt 4-Alt 3 + Broken Bar Wrap; Alt 5-Alt 4 + Localized Cylinder Wall Loss; Alt 6-100% Pipeline Replacement

5 Recommendation

The recommendations are to first execute Alternate 3: Replace All Broken Bar Wraps & Localized Cylinder Wall Loss, then reinspect the pipeline, and execute Alternative 6: 100% Pipeline Replacement. The recommended installation method is cut-and-cover.

The recommendation Year One (Alternate 3) costs are approximately $851,200 and $1.22M for construction and project costs, respectively. The recommendation Year 2 to 26 (Alternative 6 minus Alternative 3) costs are approximately $2.76M/YR and $3.94M/YR for construction and project costs, respectively.

6 References

1. List of Whale Rock Pipeline Leaks since 2013 (2013 to 2023)
2. Whale Rock Dam – Transmission Pipeline Replacement Project, November 2022 (Golf Course Pipeline Project)
3. Condition Assessment of 30-Inch Whale Rock Conveyance Conduit V 2.0, Pure Technologies, a Xylem brand, December 2019
4. Whale Rock Pipeline Relocation Project, Plans for the Construction of a 30 Inch Raw Water Pipeline, 11 pages, Parsons Engineering Science, Inc., October 1999
5. Whale Rock Conveyance Conduit Plan and Profile STA 0+00 to STA 903+78 As-Built Drawings, 80 pages, State of California Department of Water Resources Southern California District, 1959

List of Appendices

Appendix A Opinion of Probable Construction Cost (OPCC)

Appendix B Hydraulic Analysis

Appendix A. OPCC

Notes on opinion of probable construction cost (OPCC) development:

1. The 30 IN pipeline (pipeline) conveys raw water from Whale Rock Reservoir to the San Luis Obispo Treatment Plant for a total distance of approximately 16 miles
2. Pipeline material:
    a. Existing AWWA M11 welded steel pipeline (WSP) is approximately 18,321-FT, 3.47 mile, or 21.9% of total length
    b. Existing AWWA C-303 bar wrapped concrete cylinder pipeline (BWP) is approximately 65,523-FT, 12.41 mile, or 78.1% of total length
    c. Replacement pipe is 100% AWWA C151 ductile iron pipe
3. Pipeline outside diameter:
    a. Existing AWWA M11 outside diameter is unknown
    b. Existing AWWA C-303 BWP has maximum outside diameter of 35-IN
    c. For OPCC, replacement pipe is AWWA C151 ductile iron pipe has outside diameter of 32-IN
4. Pipeline installation:
    a. The pipeline is installed in paved road approximately 2.5 mile or 15.6%
    b. The pipeline is installed in unpaved road approximately 13.5 mile or 84.4%
    c. Pipeline installed in paved road schematic and quantities per linear foot are shown in Figure 7 and Table 14, respectively
    d. Pipeline installed in unpaved road schematic and quantities per linear foot are shown in Figure 8 and Table 15, respectively
5. Pipeline appurtenances
    a. Appurtenances (isolation valves, air release / vacuum valves, blowoffs, etc.) are assumed to be 20% of pipeline OPCC
    b. Pipeline restraints (thrust blocks, collars, fasteners, harness, tie rods, etc.) are assumed to be 5% of pipeline OPCC
    c. Pipeline cathodic protection (bond straps, galvanic anode system, polyethylene encasement, etc.) is assumed to be 5% of pipeline OPCC

6. Miscellaneous:
    a. Trench box / shoring box assumed
    b. No dewatering and water treatment required
    c. The cost for pipeline reinspection is excluded
    d. Traffic control is assumed to be 10% of paved pipeline OPCC
    e. Golf course lost income and site restoration are assumed at $250,000
7. OPCC:
    a. AACE International class 5 with an accuracy range of -50% to +100%
    b. Material and labor total costs are based on RSMeansOnline.com
    c. This OPCC is for capital improvement projects (CIP)
8. Exclusions:
    a. CIPP OPCC was excluded due to too many variables and unknown unknows
    b. Slip lining OPCC was excluded due to too many variables and unknown unknows

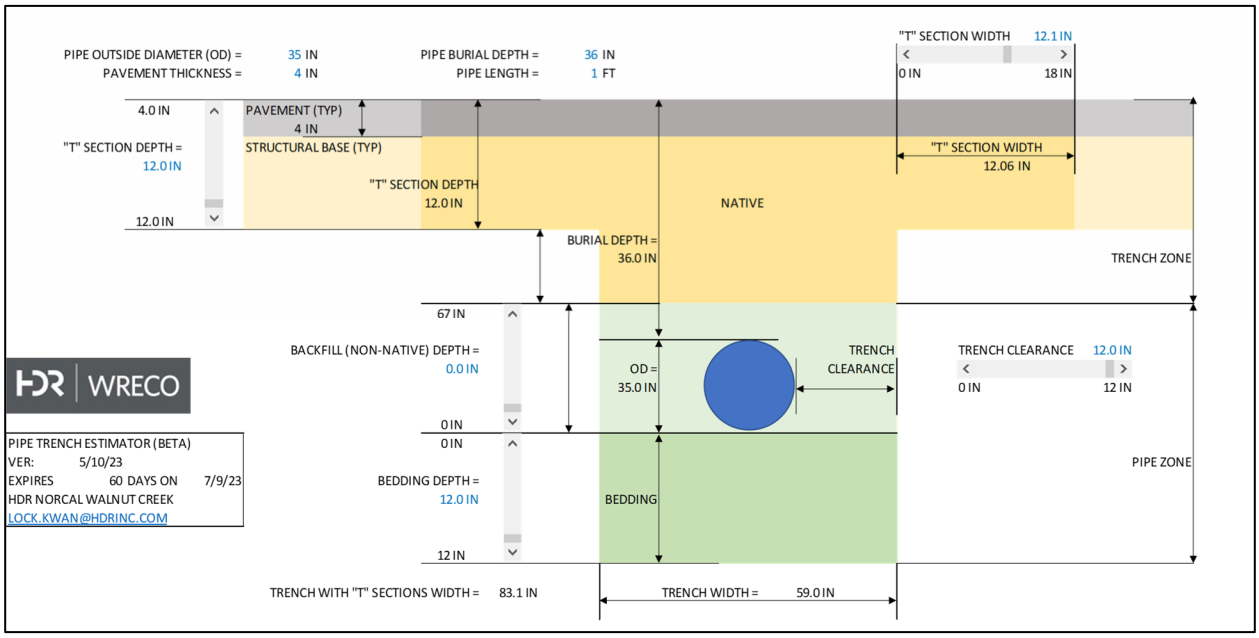


Figure 7. Pipeline installed in paved road schematic

Table 14. Pipeline installed in paved road per linear foot

DESCRIPTION	AREA		VOLUME	
	(IN^2)	(FT^2)	(FT^3)	(YD^3)
PAVEMENT	332.48	2.31	2.31	0.086
"T" SECTION (WINGS)	192.96	1.34	1.34	0.05
NATIVE	3953	27.45	27.45	1.02
BACKFILL	0	0	0	0
PIPE	962.11	6.68	6.68	0.25
BEDDING	708	4.92	4.92	0.18

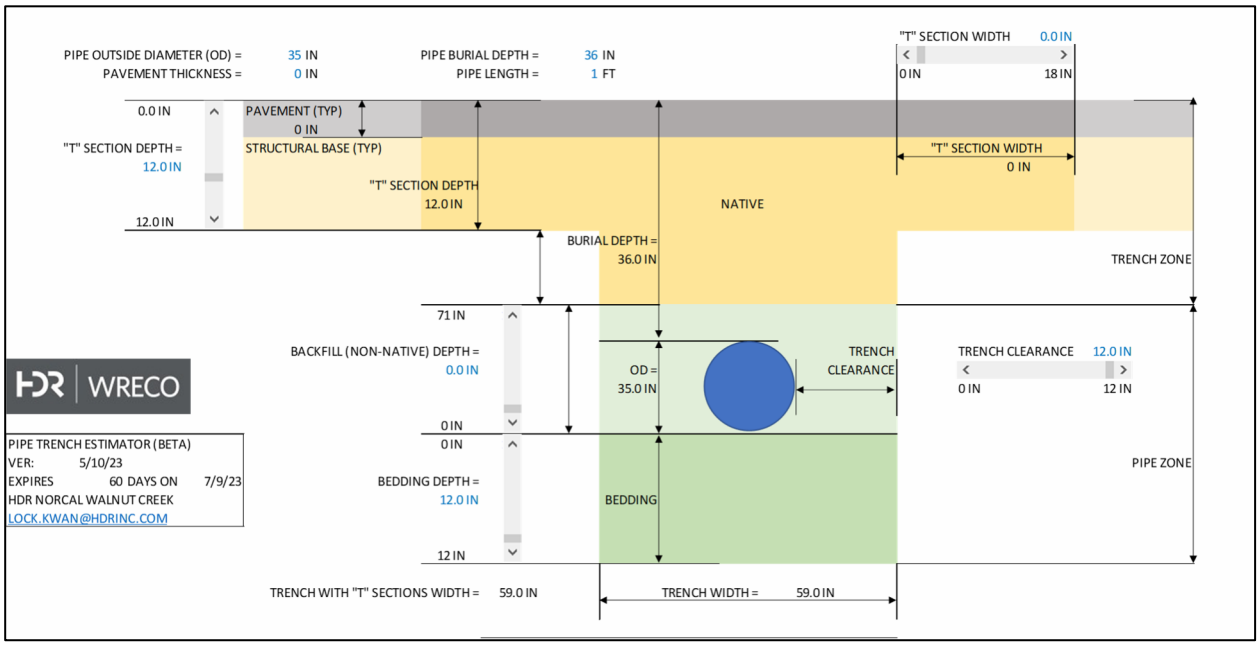


Figure 8. Pipeline installed in unpaved road schematic

Table 15. Pipeline installed in unpaved road per linear foot

DESCRIPTION	AREA		VOLUME	
	(IN^2)	(FT^2)	(FT^3)	(YD^3)
PAVEMENT	0	0	0	0
"T" SECTION (WINGS)	0	0	0	0
NATIVE	4189	29.1	29.1	1.08
BACKFILL	0	0	0	0
PIPE	962.1128	6.68	6.68	0.25
BEDDING	708	4.92	4.92	0.18

Table 16. Alternative OPCC summary

Description	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6A	Alt 6B
Subtotal Constr Cost	$332,400	$363,758	$469,508	$1,178,371	$29,452,432	$29,814,674
General Conditions (10%)	$33,240	$36,376	$46,951	$117,837	$2,945,243	$2,981,467
Contractor OH&P (12%)	$39,888	$43,651	$56,341	$141,405	$3,534,292	$3,577,761
Mob / Demob (5%)	$16,620	$18,188	$23,475	$58,919	$1,472,622	$1,490,734
Bonds and Insurance (3%)	$9,972	$10,913	$14,085	$35,351	$883,573	$894,440
Subtotal	$432,121	$472,885	$610,361	$1,531,883	$38,288,161	$38,759,077
Contingency (50%)	$216,060	$236,443	$305,181	$765,941	$19,144,081	$19,379,538
Subtotal w/ Contingency	$648,181	$709,328	$915,542	$2,297,824	$57,432,242	$58,138,615
Mkt Volatility Adj (20%)	$129,636	$141,866	$183,108	$459,565	$11,486,448	$11,627,723
Total Construction Cost	$777,817	$851,194	$1,098,650	$2,757,389	$68,918,690	$69,766,338
High End of Range (100%)	$1,555,634	$1,702,387	$2,197,300	$5,514,778	$137,837,381	$139,532,676
Low End of Range (-50%)	$388,909	$425,597	$549,325	$1,378,695	$34,459,345	$34,883,169
Total Project Cost						
Engineering Design (12%)	$93,338	$102,143	$131,838	$330,887	$8,270,243	$8,371,961
Engr Serv Sur Constr (10%)	$77,782	$85,119	$109,865	$275,739	$6,891,869	$6,976,634
Constr Mgmt (15%)	$116,673	$127,679	$164,797	$413,608	$10,337,804	$10,464,951
Permitting (Excl Envir) (6%)	$46,669	$51,072	$65,919	$165,443	$4,135,121	$4,185,980
Total Capital Cost	$1,112,279	$1,217,207	$1,571,069	$3,943,066	$98,553,727	$99,765,863
High End of Range (100%)	$2,224,557	$2,434,414	$3,142,138	$7,886,133	$197,107,454	$199,531,726
Low End of Range (-50%)	$556,139	$608,603	$785,535	$1,971,533	$49,276,864	$49,882,932

Table 17. Alt 2: Golf Course Pipeline Project OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	0	LF	$1.63	$0.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	234	LF	$15.85	$3,708.90	
2.3	Disposal: (E) pavement, bedding & pipeline	100	CY	$15.36	$1,536.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	43	CY	56.64	$2,415.13	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$3,000	$3,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$11,000	$11,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	300	CY	$4.44	$1,332.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	0	CY	$4.44	$0.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	0	CY	$10.97	$0.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	100	CY	$10.97	$1,097.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	300	CY	$0.68	$204.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	600	CY	$0.99	$594.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	0	SY	$25.79	$0.00	
32.2	Golf course lost of income and site restoration	1	LS	$250,000.00	$250,000.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	234	LF	$228.69	$53,513.46	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$3,000	$3,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$1,000	$1,000.00	10%
Subtotal Construction Cost					**$332,400.49**	
	General Conditions		10%		$33,240.05	
	Contractor OH&P		12%		$39,888.06	
	Mobilization/Demobilization		5%		$16,620.02	
	Bonds and Insurance		3%		$9,972.01	
Subtotal					**$432,120.64**	
	Contingency		50%		$216,060.32	
Subtotal w/ Contingency					**$648,180.95**	
	Market Volatility Adjustment		20%		$129,636.19	
Total Construction Cost					**$777,817.15**	$3,324.00/LF
	High End of Range		100%		$1,555,634.29	$6,648.01/LF
	Low End of Range		-50%		$388,908.57	$1,662.00/LF
Total Project Cost						
	Engineering Design		12%		$93,338.06	
	Engineering Services During Construction		10%		$77,781.71	
	Construction Management		15%		$116,672.57	
	Permitting (Excluding Environmental)		6%		$46,669.03	
Total Capital Cost					**$1,112,278.52**	$4,753.33/LF
	High End of Range		100%		$2,224,557.04	$9,506.65/LF
	Low End of Range		-50%		$556,139.26	$2,376.66/LF

Table 18. Alt 3: Replace All Broken Bar Wraps and Localized Cylinder Wall Loss OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	0	LF	$1.63	$0.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	324	LF	$15.85	$5,135.40	
2.3	Disposal: (E) pavement, bedding & pipeline	100	CY	$15.36	$1,536.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	59	CY	56.64	$3,344.03	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$4,000	$4,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$15,000	$15,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	500	CY	$4.44	$2,220.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	0	CY	$4.44	$0.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	0	CY	$10.97	$0.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	100	CY	$10.97	$1,097.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	500	CY	$0.68	$340.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	1,000	CY	$0.99	$990.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	0	SY	$25.79	$0.00	
32.2	Golf course lost of income and site restoration	1	LS	$250,000.00	$250,000.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	324	LF	$228.69	$74,095.56	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$4,000	$4,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$2,000	$2,000.00	10%
Subtotal Construction Cost					**$363,757.99**	
	General Conditions		10%		$36,375.80	
	Contractor OH&P		12%		$43,650.96	
	Mobilization/Demobilization		5%		$18,187.90	
	Bonds and Insurance		3%		$10,912.74	
Subtotal					**$472,885.38**	
	Contingency		50%		$236,442.69	
Subtotal w/ Contingency					**$709,328.07**	
	Market Volatility Adjustment		20%		$141,865.61	
Total Construction Cost					**$851,193.69**	$2,627.14/LF
	High End of Range		100%		$1,702,387.37	$5,254.28/LF
	Low End of Range		-50%		$425,596.84	$1,313.57/LF
Total Project Cost						
	Engineering Design		12%		$102,143.24	
	Engineering Services During Construction		10%		$85,119.37	
	Construction Management		15%		$127,679.05	
	Permitting (Excluding Environmental)		6%		$51,071.62	
Total Capital Cost					**$1,217,206.97**	$3,756.81/LF
	High End of Range		100%		$2,434,413.94	$7,513.62/LF
	Low End of Range		-50%		$608,603.49	$1,878.41/LF

Table 19. Alt 4: Alt 3 + Broken Bar Wrap OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	0	LF	$1.63	$0.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	630	LF	$15.85	$9,985.50	
2.3	Disposal: (E) pavement, bedding & pipeline	200	CY	$15.36	$3,072.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	115	CY	56.64	$6,502.27	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$8,000	$8,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$29,000	$29,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	800	CY	$4.44	$3,552.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	0	CY	$4.44	$0.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	0	CY	$10.97	$0.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	200	CY	$10.97	$2,194.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	800	CY	$0.68	$544.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	1,600	CY	$0.99	$1,584.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	0	SY	$25.79	$0.00	
32.2	Golf course lost of income and site restoration	1	LS	$250,000.00	$250,000.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	630	LF	$228.69	$144,074.70	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$8,000	$8,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$3,000	$3,000.00	10%
Subtotal Construction Cost					**$469,508.47**	
	General Conditions		10%		$46,950.85	
	Contractor OH&P		12%		$56,341.02	
	Mobilization/Demobilization		5%		$23,475.42	
	Bonds and Insurance		3%		$14,085.25	
Subtotal					**$610,361.01**	
	Contingency		50%		$305,180.51	
Subtotal w/ Contingency					**$915,541.52**	
	Market Volatility Adjustment		20%		$183,108.30	
Total Construction Cost					**$1,098,649.82**	$1,743.89/LF
	High End of Range		100%		$2,197,299.65	$3,487.78/LF
	Low End of Range		-50%		$549,324.91	$871.94/LF
Total Project Cost						
	Engineering Design		12%		$131,837.98	
	Engineering Services During Construction		10%		$109,864.98	
	Construction Management		15%		$164,797.47	
	Permitting (Excluding Environmental)		6%		$65,918.99	
Total Capital Cost					**$1,571,069.25**	$2,493.76/LF
	High End of Range		100%		$3,142,138.50	$4,987.52/LF
	Low End of Range		-50%		$785,534.62	$1,246.88/LF

Table 20. Alt 5: Alt 4 + Localized Cylinder Wall Loss OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	900	LF	$1.63	$1,467.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	2,628	LF	$15.85	$41,653.80	
2.3	Disposal: (E) pavement, bedding & pipeline	1,100	CY	$15.36	$16,896.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	479	CY	56.64	$27,123.76	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$31,000	$31,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$121,000	$121,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	2,800	CY	$4.44	$12,432.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	600	CY	$4.44	$2,664.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	400	CY	$10.97	$4,388.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	700	CY	$10.97	$7,679.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	3,400	CY	$0.68	$2,312.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	6,800	CY	$0.99	$6,732.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	350	SY	$25.79	$9,026.50	
32.2	Golf course lost of income and site restoration	1	LS	$250,000.00	$250,000.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	2,628	LF	$228.69	$600,997.32	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$31,000	$31,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$12,000	$12,000.00	10%
Subtotal Construction Cost					**$1,178,371.38**	
	General Conditions		10%		$117,837.14	
	Contractor OH&P		12%		$141,404.57	
	Mobilization/Demobilization		5%		$58,918.57	
	Bonds and Insurance		3%		$35,351.14	
Subtotal					**$1,531,882.80**	
	Contingency		50%		$765,941.40	
Subtotal w/ Contingency					**$2,297,824.20**	
	Market Volatility Adjustment		20%		$459,564.84	
Total Construction Cost					**$2,757,389.04**	$1,049.23/LF
	High End of Range		100%		$5,514,778.07	$2,098.47/LF
	Low End of Range		-50%		$1,378,694.52	$524.62/LF
Total Project Cost						
	Engineering Design		12%		$330,886.68	
	Engineering Services During Construction		10%		$275,738.90	
	Construction Management		15%		$413,608.36	
	Permitting (Excluding Environmental)		6%		$165,443.34	
Total Capital Cost					**$3,943,066.32**	$1,500.41/LF
	High End of Range		100%		$7,886,132.64	$3,000.81/LF
	Low End of Range		-50%		$1,971,533.16	$750.20/LF

Table 21. Alt 6A: 100% Pipeline Replacement minus Alt 3 OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	26,300	LF	$1.63	$42,869.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	84,048	LF	$15.85	$1,332,160.80	
2.3	Disposal: (E) pavement, bedding & pipeline	32,200	CY	$15.36	$494,592.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	15,315	CY	56.64	$867,465.01	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$962,000	$962,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$3,845,000	$3,845,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	89,400	CY	$4.44	$396,936.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	16,600	CY	$4.44	$73,704.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	11,400	CY	$10.97	$125,058.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	20,800	CY	$10.97	$228,176.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	106,000	CY	$0.68	$72,080.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	212,000	CY	$0.99	$209,880.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	10,220	SY	$25.79	$263,573.80	
32.2	Golf course lost of income and site restoration	0	LS	$0.00	$0.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	84,048	LF	$228.69	$19,220,937.12	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$962,000	$962,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$356,000	$356,000.00	10%
Subtotal Construction Cost					**$29,452,432**	
	General Conditions		10%		$2,945,243	
	Contractor OH&P		12%		$3,534,292	
	Mobilization/Demobilization		5%		$1,472,622	
	Bonds and Insurance		3%		$883,573	
Subtotal					**$38,288,161**	
	Contingency		50%		$19,144,081	
Subtotal w/ Contingency					**$57,432,242**	
	Market Volatility Adjustment		20%		$11,486,448	
Total Construction Cost					**$68,918,690**	$819.99/LF
	High End of Range		100%		$137,837,381	$1,639.98/LF
	Low End of Range		-50%		$34,459,345	$410.00/LF
Total Project Cost						
	Engineering Design		12%		$8,270,243	
	Engineering Services During Construction		10%		$6,891,869	
	Construction Management		15%		$10,337,804	
	Permitting (Excluding Environmental)		6%		$4,135,121	
Total Capital Cost					**$98,553,727**	$1,172.59/LF
	High End of Range		100%		$197,107,454	$2,345.18/LF
	Low End of Range		-50%		$49,276,864	$586.29/LF

Table 22. Alt 6B 100% Pipeline Replacement OPCC

Item	Description	QT	Unit	Unit Cost	Total Cost	Comments
2 - Existing Conditions						
2.1	Demolition, saw cutting, asphalt, <=3" deep	26,400	LF	$1.63	$43,032.00	Paved
2.2	Demolish, piping & fittings, 30" diameter	84,372	LF	$15.85	$1,337,296.20	
2.3	Disposal: (E) pavement, bedding & pipeline	32,300	CY	$15.36	$496,128.00	
3 - Concrete						
3.1	Sand, washed, for pipeline bedding (new)	15,374	CY	56.64	$870,809.04	
13 - Special Construction						
13.1	Pipeline cathodic protection: bond straps, galvanic anode system, polyethylene encasement, etc. at *m* % of PL length	1	LS	$965,000	$965,000.00	5%
22 - Plumbing						
22.1	Appurtenances: isolation valves, air release/vacuum valves, blowoffs, etc. at *n* % of PL length	1	LS	$3,860,000	$3,860,000.00	20%
31 - Earthwork						
31.1	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	89,700	CY	$4.44	$398,268.00	Unpaved portion
31.2	Excavation, trench, loam or sandy clay, 1 C.Y. excavator, <=6' deep	16,700	CY	$4.44	$74,148.00	Paved portion
31.3	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	11,400	CY	$10.97	$125,058.00	(E) pavement & bedding for disposal
31.4	Hauling, 30 min/load/unload, 8 CY truck, 8 mi, 30 MPH	20,900	CY	$10.97	$229,273.00	(E) pipeline for disposal
31.5	Backfill, sand and native, 300 HP dozer, 50' haul	106,400	CY	$0.68	$72,352.00	
31.6	Compaction, 4 passes, 6" lifts, riding, sheepsfoot or wobbly wheel roller	212,800	CY	$0.99	$210,672.00	
32 - Exterior Improvements						
32.1	Asphalt paving, plant mixed asphaltic base courses for roadways, 4" thick	10,260	SY	$25.79	$264,605.40	
32.2	Golf course lost of income and site restoration	1	LS	$250,000.00	$250,000.00	$250,000
33 - Utilities						
33.1	Piping, ductile iron, mechnical joint, cement lined, 30" diameter	84,372	LF	$228.69	$19,295,032.68	
33.2	Pipeline restraints: thrust blocks, collars, fasteners, harness, tie rods, etc. at *p* % of PL length	1	LS	$965,000	$965,000.00	5%
34 - Transportation						
34.1	Traffic control at *q* % of paved PL length	1	LS	$358,000	$358,000.00	10%
Subtotal Construction Cost					**$29,814,674**	
	General Conditions		10%		$2,981,467	
	Contractor OH&P		12%		$3,577,761	
	Mobilization/Demobilization		5%		$1,490,734	
	Bonds and Insurance		3%		$894,440	
Subtotal					**$38,759,077**	
	Contingency		50%		$19,379,538	
Subtotal w/ Contingency					**$58,138,615**	
	Market Volatility Adjustment		20%		$11,627,723	
Total Construction Cost					**$69,766,338**	$826.89/LF
	High End of Range		100%		$139,532,676	$1,653.78/LF
	Low End of Range		-50%		$34,883,169	$413.44/LF
Total Project Cost						
	Engineering Design		12%		$8,371,961	
	Engineering Services During Construction		10%		$6,976,634	
	Construction Management		15%		$10,464,951	
	Permitting (Excluding Environmental)		6%		$4,185,980	
Total Capital Cost					**$99,765,863**	$1,182.45/LF
	High End of Range		100%		$199,531,726	$2,364.90/LF
	Low End of Range		-50%		$49,882,932	$591.23/LF

Appendix B. Hydraulic Analysis

As part of the scope of work, this section summarizes the high level hydraulic analysis considering theoretical flow capacities, pipeline diameters, materials, and pressure ratings, elevations, and pump station operations based on piping replacement, structural lining techniques, and slip lining techniques. Whereas a detailed hydraulic analysis requires more in-depth examination of the aforementioned.

The hydraulic analysis was created as a Microsoft Excel spreadsheet with Swanee-Jain equation used to solved directly for the Darcy-Weisbach friction factor, Figure 9. Minor loses were assumed to be a percentage of major loses. Only the approximate start (EL 187 FT), end (EL 420 FT), and highest (EL 540 FT) elevations were considered with values determined from as-built drawings and Google Earth, Figure 10. The pipeline segments were assumed to have their full pressure ratings assuming the deteriorated segments are replaced for non-structural CIPP and slip lining pipeline renovation. The pipeline pressure rating was 230 to 500 PSI with the higher pressure rating immediately downstream of the booster pump station. The entire length of the pipeline was assumed to have the homogeneous/same diameter. The booster pump station was assumed to be upgraded as required. This hydraulics analysis excludes surge / transient pressure analysis that could be significant due to volumes and velocities conveyed.

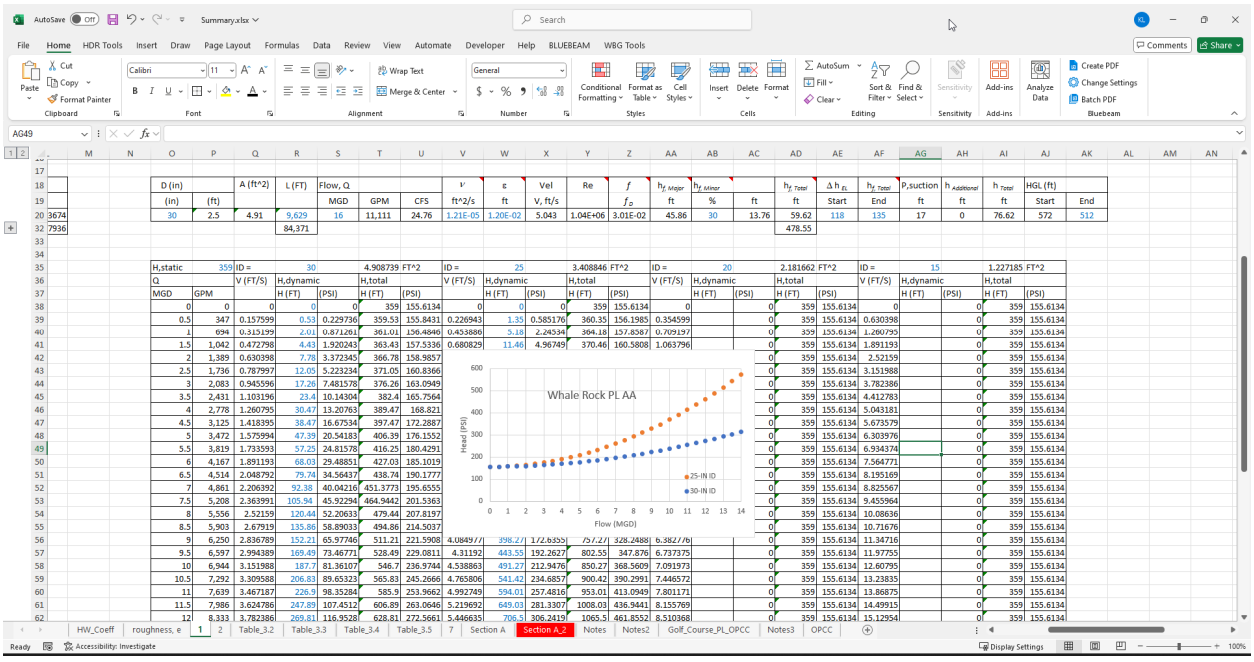


Figure 9. Whale Rock Pipeline MS Excel hydraulic analysis spreadsheet for analyzing hydraulic performance with potential reduced pipeline inside diameters

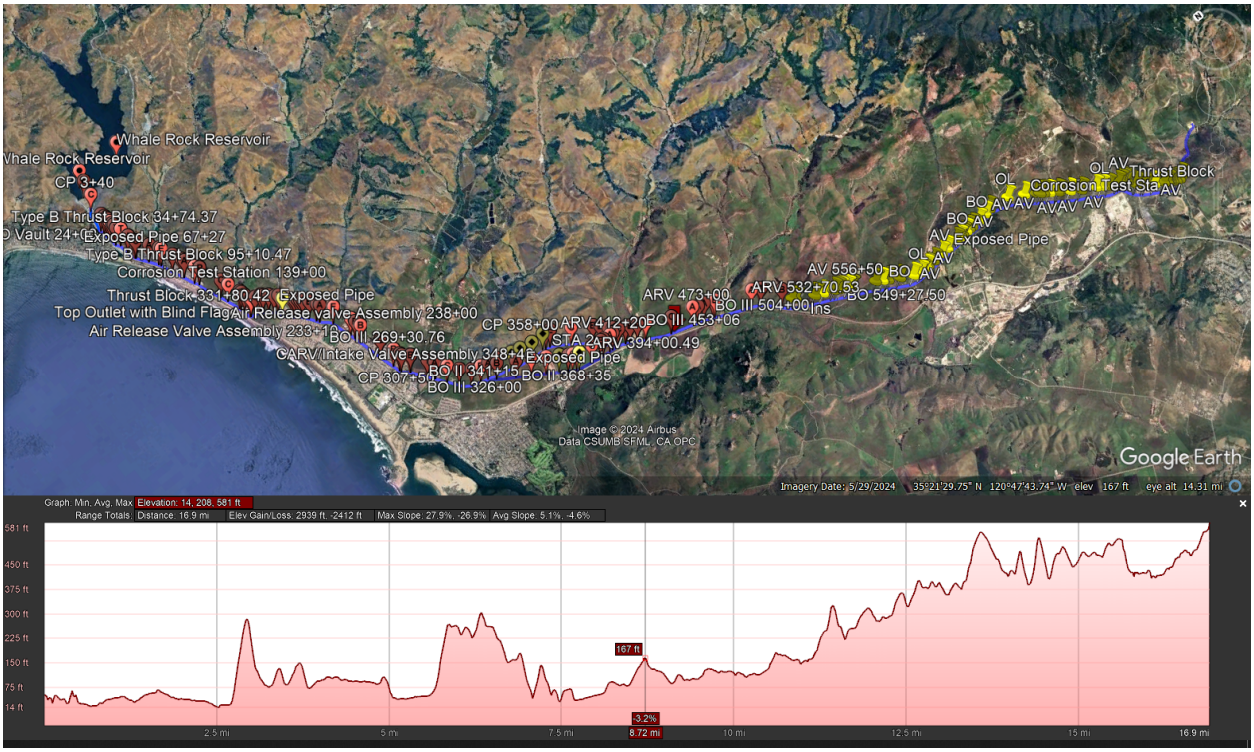


Figure 10. Pipeline alignment and elevations from Google Earth

The Whale Rock Pipeline hydraulic analysis results in graphic format is illustrated in Figure 11. The x-axis represents the booster pump station pumping flow rate in million gallon per day (MGD). The y-axis represents the energy, head, or total dynamic head (TDH) the booster pump station must add to convey given flow rates from Whale Rock Reservoir to the San Luis Obispo Treatment Plant. The booster pump station must provide a minimum head of approximately 150 PSI to overcome the static elevation head from Whale Rock Reservoir to the San Luis Obispo Treatment Plant and the highest elevation.

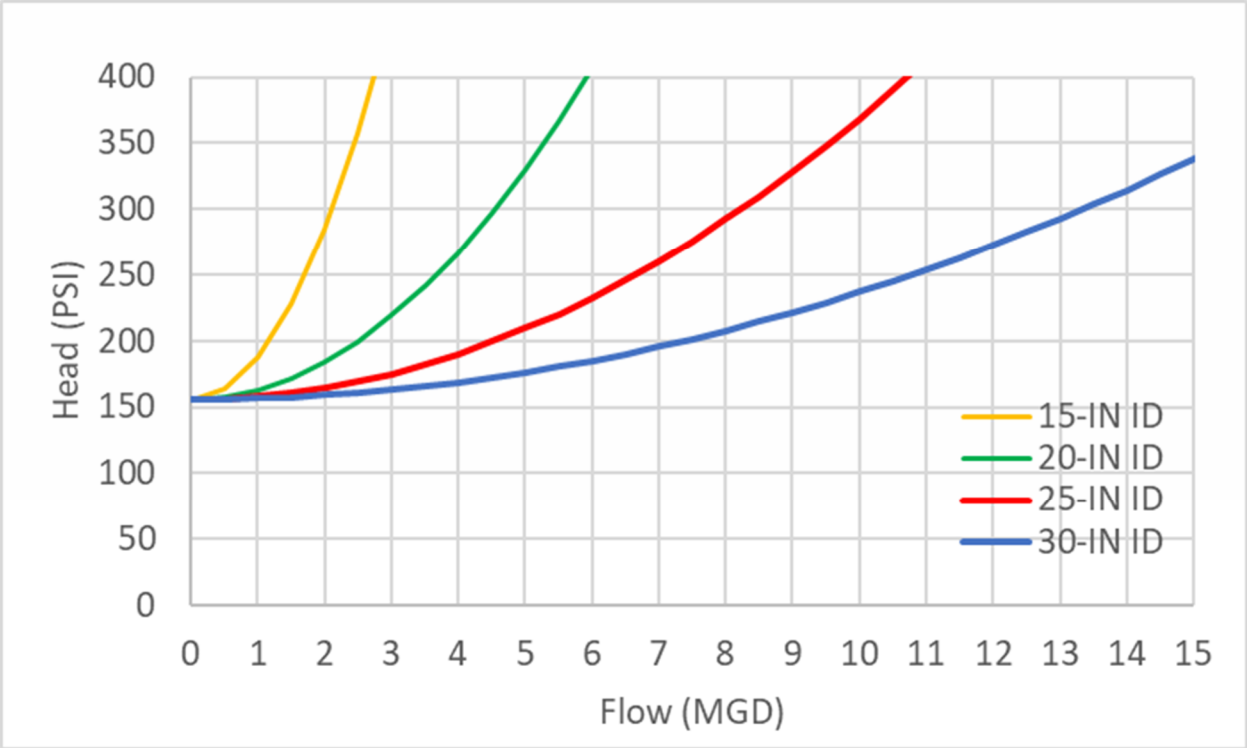


Figure 11. Whale Rock Pipeline hydraulic analysis results in graphical format. 30-IN ID blue line represents original pipeline. 25-IN ID with 30-IN OD red line represents 100% length structural CIPP rehabilitation. 20-IN ID with 24-IN OD green line represents 100% length structural HDPE pipeline slip lining. 15-IN ID with 20-IN OD yellow line represents 100% length structural HDPE pipeline slip lining.

Figure 11 blue line represents the existing theoretical 30-in diameter pipeline. The theoretical hydraulic limitations are either the booster pump station pump TDH, pipeline pressure rating including surge pressure, and/or recommended flow velocity. Assuming a recommended maximum flow velocity of seven feet per second (FT/S), the maximum theoretical flow rate results in the pump TDH and pipeline pressure ratings exceeding system design and acceptable ranges. Therefore, recommend maximum velocity will not be the limiting factor. Existing pipeline pressure rating ranges from 230 to 500 PSI. Assuming, a pipeline maximum pressure rating of 500 PSI (outside the range of Figure 11) results in flow velocity and rate of approximately 6.3 FT/S and 20 MGD, respectively. However, 500 PSI exceeds the existing booster pump station TDH and reasonable new pump TDH. Assuming a maximum pipeline pressure rating is 230 PSI (minimum pressure rating of the existing pipeline as new pipeline), the flow velocity and rate are limited to approximately 5.0 FT/S and 10 MGD, respectively. 230 PSI could result in a reasonable pump TDH assuming the pipelines are at their full pressure rating excluding surges. However, with the existing pipeline deteriorated conditions, the unknown wall loss depths, and without having performed a surge analysis, the pipeline flow velocities and rates should be reduced, resulting in reduced pump station TDH and resulting surges,

Table 23.

Table 23. 30-IN diameter pipeline reduced flow rates, velocities, and TDHs

Q (MGD)	V (FT/S)	TDH (FT)	TDH (PSI)
4.0	1.26	389	169
4.5	1.42	397	172
5.0	1.56	406	176
5.5	1.73	416	180
6.0	1.89	427	185

Figure 11 red line represents the existing 30-in diameter pipeline with 2.5-IN thick CIPP lining reducing pipeline inside diameter to 25-IN.

Table 24 summarizes HDPE iron pipe size (IPS) pressure pipe dimensional ratio (DR) and diameters.

Table 24. HDPE IPS Pressure Pipe DR and diameters for slip lining

		Outside Diameter (OD)			
		28	26	24	20
DR 9 (250 PSI)	Min Wall	3.111	2.889	2.667	2.222
	Avg ID	21.40	19.88	18.35	15.29
DR 11 (200 PSI)	Min Wall	2.545	2.364	2.182	1.818
	Avg ID	22.60	20.99	19.37	16.15
DR 13.5 (160 PSI)	Min Wall	2.074	1.926	1.778	1.481
	Avg ID	23.60	21.92	20.23	16.86

Figure 11 green line represents the existing 30-IN diameter pipeline with HDPE 24-OD, 20-IN ID, DR 13.5 (160 PSI) slip lining with the existing 30-IN diameter pipeline casing as the structural member. Figure 11 yellow line represents the existing 30-IN diameter pipeline with HDPE 20-IN OD, 15-IN ID, DR 9 (250 PSI) slip lining with the HDPE slip lined pipeline as the structural member.

It is assumed that a relatively more rigid 20-IN OD HDPE DR-9 or less rigid 24-IN OD HDPE DR 13.5 slip lining can accommodate the existing 30-IN diameter pipeline joint deflections without significant additional launching pits, whereas, 26 and 28-IN OD HDPE pipelines are too large in diameters to accommodate the existing 30-IN diameter pipeline joint deflections requiring significant additional launching pits.

Figure 11 red, green, and yellow lines assume that 100% of the 30-IN diameter pipeline length are structurally CIPP or slip lined. 100% length structurally CIPP or slip lining are unlikely due to relatively high costs and reduction in hydraulic performance. It is more likely that structurally CIPP or slip lining will be applied as a phased approach similar to Alternative 6. Assuming if 50% of the 30-IN diameter pipeline length is eventually structurally slip lined with 20-IN ID pipeline, graphically the hydraulic performance could be represented in Figure 11 as the 25-IN ID red line. However, if structurally CIPP or slip lining will be applied as a phased approach, there will be significant costs for mobilization with CIPP mobilization at approximately $300,000 per project.

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 6 – FY 2023-24 Financial Statements

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Mychal Boerman, Utilities Deputy Director – Water
Tavy Garcia – Senior Accountant

SUBJECT: FY 2023-24 Financial Statements

RECOMMENDATION

Receive and file Fiscal Year 2023-24 Whale Rock Financial Statements

DISCUSSION

Summary

Each year the City receives an independent audit of the Whale Rock Commission's financial statements. This audit provides an opinion as to whether the financial statements are prepared, in all material respects, in accordance with accounting principles generally accepted in the United States of America. For the 2023-24 fiscal year, the auditors have issued a "clean" opinion, meaning that the financial statements are presented fairly in all material respects.

The Management's Discussion and Analysis section includes financial and operational highlights for the fiscal year and summary information on the Commission's financial position at year end.

As in prior years, the auditors have also provided a report on the internal controls over financial reporting and, consistent with the findings for the City's Annual Comprehensive Financial Report, identified two areas of improvement, with one being a material weakness related to journal entry posting, and the other being a significant deficiency related to payroll module implementation. These findings, along with the City's responses are incorporated into the last section of the audited financial statements (pages 37-40). The City's finance department will work to correct these two issues over the next year.

The Whale Rock Commission 2023-24 Financial Statements, as well as the auditor's reports, are provided in the attachment section of this report.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act does not apply to the recommended action, because the action does not constitute a "Project" under CEQA Guidelines Sec. 15278.

FISCAL IMPACT

The proposed action would not result in fiscal impacts to the Whale Rock Commission member agencies.

ALTERNATIVES

The commission could choose to request modifications to the financial statements if an error is identified with the statements included in Attachment A.

ATTACHMENT

A – 2023-24 Whale Rock Commission Financial Statements

Whale Rock Commission Report

Whale Rock Commission Meeting – May 8, 2025
Agenda Item 7 – 2025-26 Whale Rock Reservoir Budget

FROM: Aaron Floyd, Utilities Director
PREPARED BY: Mychal Boerman, Utilities Deputy Director - Water

SUBJECT: 2025-26 Whale Rock Reservoir Budget

RECOMMENDATION

Adopt the 2025-26 Whale Rock Reservoir Budget.

DISCUSSION

Summary

Pursuant to the Supplemental Agreement for the Construction and Operation of the Whale Rock Project, San Luis Obispo County (February 1961), the Whale Rock Commission has the powers and duties to consider and approve the annual budget (Attachment E - Section C3). In alignment with this agreement, staff have developed a proposed budget and proposed member agency contributions that considers Operating, Salaries and Benefits, Capital, and Electrical Pumping expenditures. These member agency contributions are summarized in the tables below.

Table 1 – 2025-26 Agency Contributions

	City of San Luis Obispo (55.05%)	Cal Poly State University (33.71%)	California Men's Colony (11.24%)
Total Contribution	**$1,626,461**	**$995,967**	**$332,088**
O&M Allocation[1]	$770,597	$471,877	$157,339
CIP Contribution	$93,507	$57,259	$19,092
CIP Reserve Contribution	$762,357	$466,831	$155,657

Table 2 – 2025-26 Forecasted Pumping Charges

	City of San Luis Obispo (1,100 AF)	Cal Poly State University (1,100 AF)	California Men's Colony (300 AF)	Dairy Creek (50 AF)
Forecasted Pumping Charges	**$306,306**	**$306,306**	**$83,538**	**$13,923**

[1] O&M Allocation does not include electricity costs associated with pump station operation. Participants should budget for the total of "Total Contribution" (Table 1) plus "Forecasted Pumping Charges" (Table 2).

The next sections describe the detailed budgets from which the recommendations above are derived. Additional sections on recommending capital reserve contributions are also included.

Detailed Budgets
Table 3 contains budget totals organized by cost categories and subcategories.

Table 3 – Detailed Budgets	2024-25 Adopted Budget	2025-26 Proposed Budget	2026-27 Forecasted Budget
Capital Asset Expenses	**$2,451,801**	**$1,554,704**	**$2,394,845**
Capital Expenses	$1,236,506	$169,859	$1,010,000
Legacy Projects	$1,720,295		
Transfers to/from Capital Reserves	$(505,000)	$1,384,845	$1,384,845
Salaries and Benefits	**$706,958**	**$795,293**	**$768,900**
Salaries	$504,086	$554,675	$514,770
Benefits	$202,873	$240,618	$254,130
Operating Budget	**$1,370,294**	**$1,321,593**	**$1,324,290**
Office Expenses	$2,000	$8,466	$8,466
Operating Materials & Supplies	$93,100	$93,050	$93,250
Services and Supplies	$194,980	167,828	$182,853
Travel, Meeting, and Dues	$9,350	$8,200	$8,200
Utilities – Electrical Pumping	$760,225	$710,073	$687,100
Utilities – Other	$28,036	$32,400	$33,000
General Government	$282,603	$301,576	$311,421
Revenues	**$2,808,758**	**$3,671,589**	**$4,488,036**
Charges for Services	$2,070,252	$1,399,812	$1,399,091
Charges for Electricity	$760,255	$710,073	$687,100
Charges for Contribution to Capital Reserves	$0	$1,554,704	$2,394,845
Other Revenue	$7,000	$7,000	$7,000
Net Revenue (Revenue minus Expenditures)[1]	**$1,720,295**	**$0**	**$0**

Ending Year Balance	2024-25	2025-26	2026-27
Capital Reserve Balance	**$2,017,683**	**$3,402,528**	**$4,787,373**
Unreserved Fund Balance	**$1,280,168**	**$1,280,168**	**$1,280,168**

Tables including descriptions of the subcategories, more granular budget data, and detailed capital projects forecasts are included as attachments A, B, and C. A copy of the Whale Rock Fund Analysis is included as attachment D.

Capital Reserve Balances and Recommendations
Capital reserve balance and staff recommendations for capital reserves in 2025-26 are outlined in Table 4. These recommendations will be reviewed annually to ensure that reserve balances are sufficient to cover capital needs and to try to reduce the frequency of large year-to-year variations in capital costs. Staff are recommending increasing capital reserve contributions over the next two fiscal years in anticipation of 200549-Whale Rock Pump Station Electrical Repairs (A and B), which is scheduled for construction in 2027-28. Staff anticipate recommending a $4,000,000 utilization of capital reserves across all partner agencies for 200549-Whale Rock Pump Station Electrical Repairs (A and B) in 2027-28.

Table 4 – Capital Reserves and Recommendations	City of San Luis Obispo (55.05%)	Cal Poly State University (33.71%)	California Men's Colony (11.24%)
2024-25 Capital Reserve Balance	$1,189,754	$585,005	$242,922
2025-26 Capital Reserve Contributions	$762,357	$466,831	$155,657
2025-26 Capital Reserve Balance	$1,952,112	$1,051,837	$398,579

This would result in the net capital contributions for 2025-26 outlined in Table 5.

Table 5 – Net Capital Contributions	City of San Luis Obispo (55.05%)	Cal Poly State University (33.71%)	California Men's Colony (11.24%)
2025-26 Net Capital Contributions	$855,865	$524,091	$174,749

Staff will evaluate capital reserve levels and contributions on an annual basis to reassess for sufficiency. Staff will continue to research best practices relative to capital reserve levels and will present finding to the Whale Rock Commission at a future meeting.

Agency Contributions
The Whale Rock Commission members' contributions are summarized in Table 1 and Table 2. The largest expenditure increases, relative to the previous year, are primarily related to increased contributions to capital reserves for 200549-Whale Rock Pump Station Electrical Repairs (A and B).

A year-over-year summary of Whale Rock Commission members' contributions are included in Table 6.

Table 6 – Year-Over- Year Agency Contributions	2023-24 Actual Contributions	2024-25 Adopted Budget	2025-26 Proposed Budget
City of San Luis Obispo (55.05%)	**$1,202,058**	**$1,476,364**	**$1,932,767**
O&M Allocation	$684,116	$721,170	$770,597
CIP Contribution	$339,862	$402,694	$855,865
Pumping Charges	$178,080	$352,500	$306,306
Cal Poly State University (33.71%)	**$952,015**	**$970,201**	**$1,302,273**
O&M Allocation	$418,920	$441,610	$471,877
CIP Contribution	$284,695	$246,591	$524,091
Pumping Charges	$248,400	$282,000	$306,306
California Men's Colony (11.24%)	**$317,994**	**$355,193**	**$415,626**
O&M Allocation	$139,681	$147,247	$157,339
CIP Contribution	$69,393	$82,221	$174,749
Pumping Charges	$108,920	$125,725	$83,538
Total Member Contributions	**$2,472,067**	**$2,801,758**	**$3,650,666**

ENVIRONMENTAL REVIEW

The California Environmental Quality Act does not apply to the recommended action, because the action does not constitute a "Project" under CEQA Guidelines Sec. 15278.

ALTERNATIVES

The Whale Rock Commission members may elect not to approve the budget as proposed or may elect to modify elements of the proposed budget. This alternative is not recommended as the proposed budget allocates funding for staffing, electrical costs, Capital Improvement Projects, and costs for other essential functions related to the safety of Whale Rock Reservoir and delivery of raw water from the reservoir for basic health and safety needs.

ATTACHMENT

A – Descriptions of Account Subcategories
B – Detailed Budgets (Account Level Detail)
C – Capital Project Forecast
D – Whale Rock Fund Analysis
E – Supplemental Agreement for the Construction and Operation of the Whale Rock Project, San Luis Obispo County (February 1961)

Item 7 - Attachment A

Subcategory	Descriptions
Capital Expenses	This subcategory describes project budgets proposed to be allocated in the corresponding fiscal year.
Legacy Projects	This subcategory describes project budgets that were approved in a prior fiscal year but are still allocated for the current fiscal year. Expenses for capital projects may be incurred in multiple fiscal years due to the timing of the project.
Capital Reserves	This subcategory describes agency contributions to a reserve account for future capital projects. These funds are reserved and can only be utilized as authorized by member agencies.
Salaries	This subcategory describes all direct payment for salaries related to operating the Whale Rock Reservoir. This includes regular salaries, standby, and call back.
Benefits	This subcategory describes all benefits for staff related to operating the Whale Rock Reservoir. This includes retirement contributions, CalPERS, and insurance.
Office Expenses	This subcategory describes expenses such as paper, toner, binders, and other miscellaneous office supplies.
Operating Materials and Supplies	This subcategory describes all materials related to operating the Whale Rock Reservoir. Some of the specific items covered by this cost category include valves, pump repair materials, water meters, fencing materials, etc.
Services and Supplies	This subcategory describes expenses such as annual dam inspections through the California Department of Water Resources, minor pump and motor rebuilds, and other contract services.
Travel, Meeting, and Supplies	This subcategory describes expenses related to education and training such as AWWA conferences and other pertinent educations opportunities.
Utilities – Electrical Pumping	This subcategory describes the expenses related to pumping water from the Whale Rock Reservoir to the Whale Rock Commission members. While staff provided forecasted budget for this expense, pumping charges are **not** collected through agency contributions, and are billed separately based on proportional share of water delivered.
Utilities – Other	This subcategory describes utility expenses **not** related to pumping water. This includes utilities like communications, garbage, and facility and office electricity.
General Government	This subcategory describes expenses related to internal support services provided by the City, including the Finance, Human Resources, and City Clerk's Office Departments.
Charges for Services	This subcategory includes all Whale Rock Commission Member contributions, and any revenues related the fishing program.
Other General Government Revenue	This subcategory describes all other revenue. It includes any sort of interest on investments, rental revenues, etc.

Attachment B - Detailed Budgets (Account Level Details)

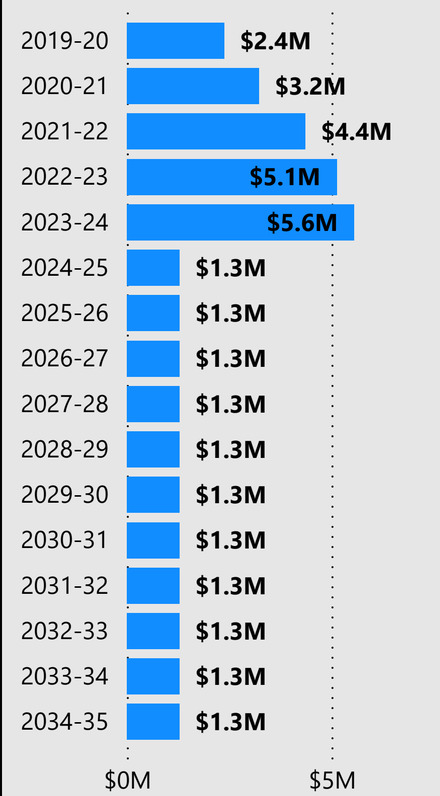
2025-26 Budget Data by Account	Fiscal Year		
Concat Account	2025 Budgeted	2026 Proposed	2027 Forecasted
31022-Whale Rock CIP Reserve Contribution - City	$ (1,189,754.81)	$ (762,357.17)	$ (762,357.17)
31023-Whale Rock CIP Reserve Contribution - Cal Poly	$ (585,005.62)	$ (466,831.25)	$ (466,831.25)
31024-Whale Rock CIP Reserve Contribution - CA Men's Colony	$ (242,922.07)	$ (155,656.58)	$ (155,656.58)
44101-Interest on Investment	$ 1,000.00	$ 1,000.00	$ 1,000.00
44310-Miscellaneous Revenue	$ 6,000.00	$ 6,000.00	$ 6,000.00
46706-Whale Rock Operating Charges	$ 1,310,027.24	$ 1,399,812.31	$ 1,399,090.69
46707-Whale Rock CIP Contributions	$ 731,505.82	$ 1,554,704.00	$ 2,394,845.00
46711-Water Distribution (Pumping) Charges	$ 760,225.00	$ 710,073.00	$ 687,100.05
51001-Salaries - Regular	$ (461,660.77)	$ (471,415.14)	$ (474,159.10)
51003-Salaries - Contract	$ (10,179.78)	$ -	$ -
51004-Salaries - Temporary	$ -	$ -	$ -
51010-Overtime	$ (4,000.00)	$ (3,000.00)	$ (3,000.00)
51017-Standby	$ (22,245.00)	$ (22,245.00)	$ (22,245.00)
51018-Call Back	$ (6,000.00)	$ (4,000.00)	$ (4,000.00)
52001-Retirement Contributions	$ (40,810.22)	$ (38,552.56)	$ (38,775.36)
52002-Retirement PARS - 401	$ (218.20)	$ (222.38)	$ (222.38)
52003-PERS Unfunded Liability	$ (117,571.53)	$ (131,432.05)	$ (142,168.73)
53001-Employee Group Insurance	$ (57,428.40)	$ (57,449.40)	$ (59,792.40)
53002-Retiree Healthcare	$ (7,528.74)	$ (6,180.44)	$ (6,350.50)
55001-Medicare	$ (6,639.43)	$ (6,780.71)	$ (6,820.49)
56003-Contingency Expense		$ (54,014.63)	$ (11,366.20)
61005-Data Processing Services	$ (6,400.00)	$ -	$ -
61007-Legal Services	$ (20,000.00)	$ (20,000.00)	$ (20,000.00)
61011-Maintenance	$ (19,400.00)	$ (16,200.00)	$ (16,200.00)
61013-Other Contract Services	$ (140,130.91)	$ (118,650.00)	$ (134,000.00)
61027-Control Systems	$ (10,830.00)	$ (12,978.00)	$ (12,653.00)
61503-Electric Service	$ (773,161.00)	$ (723,373.00)	$ (700,400.05)
61505-Communication Service	$ (12,100.00)	$ (15,500.00)	$ (16,100.00)
61506-Solid Waste Service	$ (3,000.00)	$ (3,600.00)	$ (3,600.00)
62002-Office Supplies	$ (1,500.00)	$ (1,500.00)	$ (1,500.00)
62007-Employee Recognition	$ (500.00)	$ (500.00)	$ (500.00)
62009-Software Licensing and Maint Agreements		$ (6,466.00)	$ (6,466.00)
62501-Chemicals	$ (500.00)	$ (700.00)	$ (700.00)
62502-Construction Materials and Supplies	$ (5,906.50)	$ (5,900.00)	$ (6,000.00)
62503-Equipment Maintenance Supplies	$ (5,000.00)	$ (5,500.00)	$ (5,500.00)
62505-Machinery and Equipment	$ (60,000.00)	$ (60,000.00)	$ (60,000.00)
62506-Safety Materials and Supplies	$ (2,150.00)	$ (2,150.00)	$ (2,150.00)
62509-Misc Materials and Supplies	$ (19,650.00)	$ (18,800.00)	$ (18,900.00)
63001-Membership and Certifications	$ (950.00)	$ (600.00)	$ (600.00)
63002-Education and Training	$ (6,900.00)	$ (6,100.00)	$ (6,100.00)
63003-Trips and Meetings	$ (1,500.00)	$ (1,500.00)	$ (1,500.00)
71006-Project Expenditures	$ (1,236,505.82)	$ (169,859.00)	$ (1,010,000.00)
71999-Legacy Project Expenses	$ (1,720,295.55)		
75002-Reimbursement Transfers Out	$ (282,603.16)	$ (301,576.00)	$ (311,421.53)
Grand Total	**$ (4,272,189.46)**	**$ -**	**$ -**

2025-26 Capital Projects Forecast Item Description	Notes	Fiscal Year 2025 Budgeted	2026 Proposed	2027 Forecasted	2028 Forecasted	2029 Forecasted	2030 Forecasted	2031 Forecasted	2032 Forecasted	2033 Forecasted	2034 Forecasted	2035 Forecasted
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-02-Asset Management (Cityworks - Utilities Integration)	$ 5,980.00										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-12-Firewall Replacement	$ 841.82										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-15-Network Security Upgrade	$ 421.00										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-25-Radios, Mobiles and stations not replaced - EF & PW Only	$ 10,000.00										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-27-Uninterruptible Power Supplies (UPS's Servers and Storage)	$ 1,962.00										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-29-Virtual Private Network Replace	$ 2,341.00										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-30-VMware Infrastructure Upgrade	$ -										
1000074-IT Replacements - Annual Asset Maintenance Account	1000074-31-VoIP Telephone System	$ -										
1000521-Fleet Replacement: Utilities	1000521-40-Whale Rock Sevice Truck (1637)							$ 100,000.00				
1000521-Fleet Replacement: Utilities	2000521-03.01 - Whale Rock 1/2 Ton Truck (1630)						$ 82,500.00					
1000521-Fleet Replacement: Utilities	2000521-34-Fleet Services Vehicle Lift (1000181)	$ -	$ -	$ -		$ -						
1000521-Fleet Replacement: Utilities	2000521-35-Fleet - F150 4x4 Pick-up	$ -	$ -	$ -	$ -							
1000521-Fleet Replacement: Utilities	2000521-36-Fleet - 4x4 3/4 Ton Truck w/Utility Box & Crane	$ -	$ -	$ -	$ -							
1000521-Fleet Replacement: Utilities	2000521-37-Fleet - 4x4 SUV - Jeep (1738)	$ -	$ -	$ -	$ -				$ 76,000.00			
1000521-Fleet Replacement: Utilities	2000521-38-Fleet - Boston Whaler	$ -	$ -	$ -	$ -		$ 40,000.00					
1000521-Fleet Replacement: Utilities	2000521-39-Boat Trailer	$ -	$ -	$ -	$ -		$ 10,000.00					
1000521-Fleet Replacement: Utilities	2000521-40-Fleet Services Vehicle Lift	$ -	$ -	$ -	$ -							
1000521-Fleet Replacement: Utilities	2000521-40-Whale Rock Portable Generator (1302)					$ 200,000.00						
1000521-Fleet Replacement: Utilities	2000521-40-Whale Rock UTV w/ Dump Bed (1509)				$ 30,000.00							
2000075-Major Facilities Maintenance [1000075]	Carryover: 09.01-Corp Yard Fuel Island Siding / Recoating of Fuel Island and Dispensers	$ 15,997.31										
2000176-Whale Rock Intake Valve Replacement [1000176]	Carryover: 00-BASE	$ 200,000.00										
2000181-Fleet Services Vehicle Lift [1000181]	Carryover: 02-Whale Rock Fund Vehicle Lift	$ -										
2000521-Fleet Replacement: Utilities [1000521]	Carryover: 03.02-Whale Rock Utility Tractor	$ 75,000.00										
2000521-Fleet Replacement: Utilities [1000521]	Carryover: 03.03-Whale Rock Trailer	$ 6,346.00										
2000521-Fleet Replacement: Utilities [1000521]	Carryover: 03.04-Whale Rock Dump Trailer	$ 8,438.75										
2000602-Utilities IT Replacements [1000074]	1000074-02-Asset Management (Cityworks - Utilities Integration)		$ -	$ -	$ -							
2000602-Utilities IT Replacements [1000074]	1000074-12-Firewall Replacement		$ -	$ -	$ -		$ 975.90					$ 1,131.34
2000602-Utilities IT Replacements [1000074]	1000074-15-Network Security Upgrade		$ -	$ -	$ 460.04			$ 502.70			$ 549.31	
2000602-Utilities IT Replacements [1000074]	1000074-25-Radios, Mobiles and stations not replaced - EF & PW Only		$ -	$ -	$ -				$ 12,298.74			
2000602-Utilities IT Replacements [1000074]	1000074-27-Uninterruptible Power Supplies (UPS's Servers and Storage)		$ -	$ -	$ 2,143.93			$ 2,342.73			$ 2,559.96	
2000602-Utilities IT Replacements [1000074]	1000074-29-Virtual Private Network Replace		$ -	$ -	$ -		$ 2,713.86					$ 3,146.11
2000602-Utilities IT Replacements [1000074]	1000074-30-VMware Infrastructure Upgrade		$ 8,301.00	$ -	$ -	$ 9,070.73			$ 9,911.83			$ 10,830.92
2000602-Utilities IT Replacements [1000074]	1000074-31-VoIP Telephone System		$ 1,558.00	$ -	$ -							$ 2,032.84
2000602-Utilities IT Replacements [1000074]	1000074-Network Switching Infrastructure Equipment					$ 724.55					$ 839.95	
2000602-Utilities IT Replacements [1000074]	1000074-Wireless System Citywide				$ 1,299.55					$ 1,506.53		
2000602-Utilities IT Replacements [1000074]	Carryover: 01.03-Asset Management Cityworks Integration (Whale Rock Fund)	$ 630.00										
2000603-Enterprise IT Replacements [1000074]	Carryover: 09-Wireless System Citywide	$ -										
2000604-Network IT Replacements [1000074]	Carryover: 04.03-Network Switching Infratstructure Equipment (Whale Rock Fund Contributions)	$ 625.00										
2001009-Whale Rock Major Maintenance [91335]	02-Reservoir Fencing	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00
2001009-Whale Rock Major Maintenance [91335]	03-Advanced Instrumentation and Safety Monitoring of Critical Infrastructure	$ 250,000.00	$ -	$ -	$ -							
2001009-Whale Rock Major Maintenance [91335]	05-Evaporation/Weather Stations	$ -	$ -	$ -	$ -							
2001009-Whale Rock Major Maintenance [91335]	07-Valve Replacement	$ -	$ -	$ -	$ 200,000.00							
2001009-Whale Rock Major Maintenance [91335]	08-Roadway Pavement	$ 520,000.00										
2001009-Whale Rock Major Maintenance [91335]	08-Roadway Pavement (adjusted based on NE and MB feedback)	$ (105,040.00)										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 00-BASE	$ 184,030.40										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 01-Spillway Drain Repairs	$ 263,929.90										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 02-Reservoir Fencing	$ 20,000.00										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 04-Stilling Basin	$ 216,332.47										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 06-Whale Rock Reroof of Shop and Residence	$ 7,333.92										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 07-Inventory for Emergency Pipeline Repairs	$ 2,593.50										
2001009-Whale Rock Major Maintenance [91335]	Carryover: 08-Roadway Pavement	$ 120,000.00										
2001009-Whale Rock Major Maintenance [91335]	Shop Pavement Replacement						$ 50,000.00					
2001009-Whale Rock Major Maintenance [91335]	Stilling Basin		$ 20,000.00									
2001009-Whale Rock Major Maintenance [91335]	Water Dam Spillway Wall Concrete Profiling		$ -									
2001017-Whale Rock Pipe Assessment and Repairs [91617]	Carryover: 00-BASE	$ 528,497.26										
2001017-Whale Rock Pipe Assessment and Repairs [91617]	Carryover: 01-2001017-01 - Pipeline Replacement Alternatives Study	$ 51,000.00										
2001019-Whale Rock Auto Control Valves [91718]	Carryover: 00-BASE	$ 19,541.04										
200549-Whale Rock Pump Station Electrical Repairs (A and B) [1000549]	1000549-01-Whale Rock Pump Station Rehab (A and B)	$ 500,000.00		$ -	$ 7,000,000.00							
200xxx-Emergency pipeline repair	00-BASE (moved from operating to CIP 2024-25)	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00			
91617-Whale Rock Transmission Pipeline	91617-01-Pipeline Creek Crossings - point repairs		$ 30,000.00									
91617-Whale Rock Transmission Pipeline	91617-01-Transmission Pipeline Repairs CM	$ -	$ -	$ 60,000.00	$ -							
91617-Whale Rock Transmission Pipeline	91617-01-Transmission Pipeline Repairs Design	$ -	$ 60,000.00	$ -	$ -							
91617-Whale Rock Transmission Pipeline	91617-01-Transmission Pipeline Repairs Inspection	$ -	$ -	$ -	$ 550,000.00							
91617-Whale Rock Transmission Pipeline	91617-01-Transmission Pipeline Repairs Repair	$ -	$ -	$ 900,000.00	$ -							
91617-Whale Rock Transmission Pipeline	91617-01-Transmission Pipeline Replacement						$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00			
xxxxxxx-Placeholder project	(blank)					$ -	$ -	$ -	$ -	$ 100,000.00	$ 100,000.00	$ 100,000.00

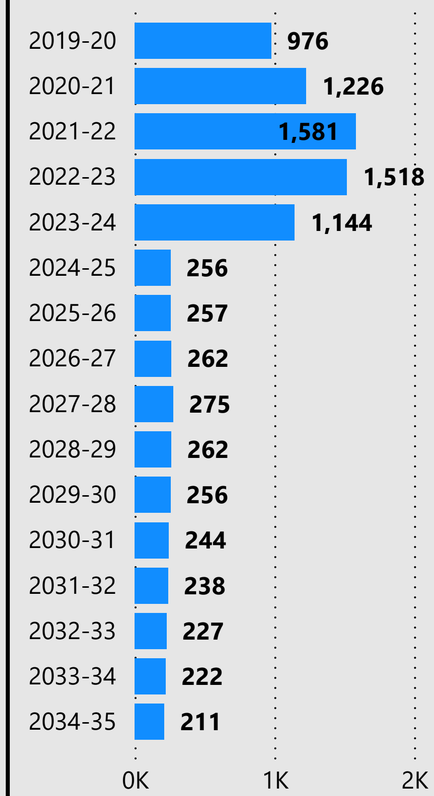
Whale Rock Fund Financial Position

Forecasted OpEx Contributions | Forecasted Pumping Charges

Unreserved Fund Balance



Days of Cash on Hand



2025-26 Ending CIP Reserves Balance - City of San Luis Obispo

$1,952,112

2025-26 Ending CIP Reserves Balance - Cal Poly

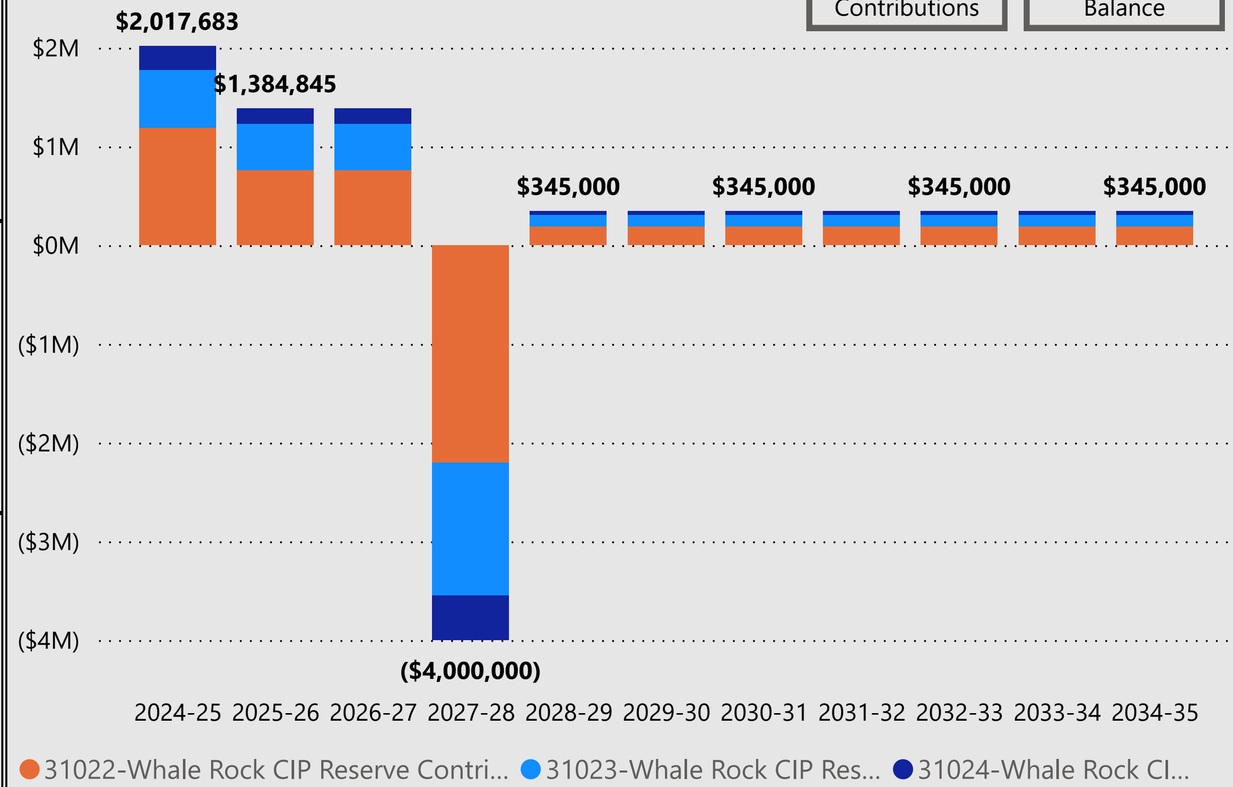
$1,051,837

2025-26 Ending CIP Reserves Balance - California Men's Colony

$398,579

Capital Reserve Contributions by Agency Member

Forecasted CIP Contributions | CIP Reserve Balance



Net Revenue

Account Category	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33
⊞ Capital Asset Expense	($84,591)	($168,494)	($76,025)	($176,959)	($577,105)	($2,956,801)	($169,859)	($1,010,000)	($7,833,904)	($259,795)	($2,036,190)	($1,952,845)	($1,948,211)	($121,5(
⊞ Capital Reserves						($2,017,683)	($1,384,845)	($1,384,845)	$4,000,000	($345,000)	($345,000)	($345,000)	($345,000)	($345,0(
⊞ General Government	($160,203)	($183,978)	($186,211)	($190,488)	($274,372)	($282,603)	($301,576)	($311,422)	($320,764)	($330,387)	($340,299)	($350,508)	($361,023)	($371,8
⊞ Operations	($337,039)	($414,989)	($309,075)	($568,828)	($1,094,505)	($1,089,578)	($1,020,017)	($1,012,869)	($898,246)	($958,078)	($977,214)	($1,041,903)	($1,063,479)	($1,133,4
⊞ Revenue	$1,868,814	$2,161,494	$2,394,658	$2,376,183	$3,046,366	$2,808,758	$3,671,589	$4,488,036	$5,851,642	$2,715,308	$4,544,769	$4,561,062	$4,614,001	$2,894,3
⊞ Salaries and Benefits	($550,117)	($545,122)	($695,766)	($664,555)	($677,123)	($734,282)	($795,292)	($768,900)	($798,728)	($822,048)	($846,067)	($870,806)	($896,288)	($922,5
Total	**$736,864**	**$848,912**	**$1,127,581**	**$775,353**	**$423,261**	**($4,272,189)**	**$0**	**$0**	**$0**	**($0)**	**($0)**	**($0)**	**($0)**	

Whale Rock Fund Revenue Details

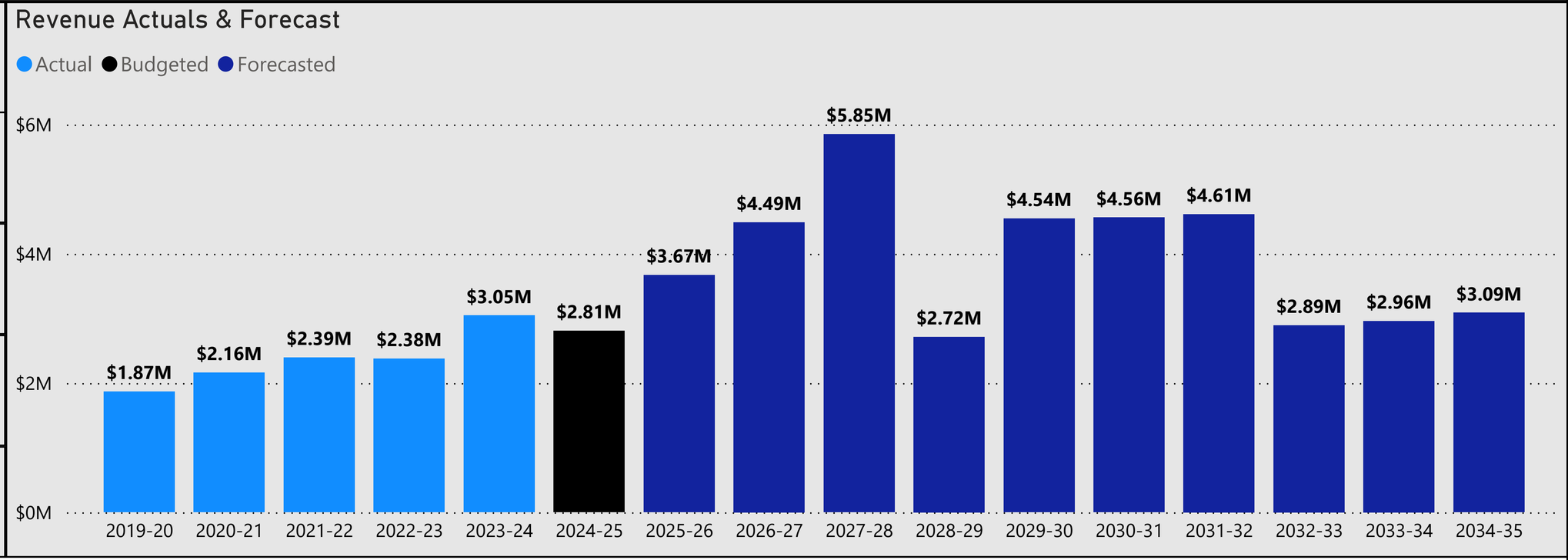
Account Category
All

Account Subcategory
All

Concat Account
All

Item Description
All

Assigned Member Agency
All



Concat Account	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	203
44002-Rental Fees		$5,049	$1,122										
44101-Interest on Investment	$71,545	$818	$39,588	$78,159	$183,176	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
44107-Investment FMV Adjustment			($146,953)	($17,408)	$84,677								
44201-Other Rent & Leasse Revenue	$4,862		$3,366	$4,488	$5,895								
44305-Damage to City Property	$7,613												
44310-Miscellaneous Revenue	$743	$743	$1,091	$743	$742	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	
45307-Federal Stimulus Grant			$260										
46703-Utilities Base Charges	($3,034)												
46706-Whale Rock Operating Charges	$979,351	$1,015,607	$949,126	$1,126,924	$1,242,781	$1,310,027	$1,399,812	$1,399,091	$1,427,435	$1,491,043	$1,513,487	$1,580,970	$1
46707-Whale Rock CIP Contributions	$576,621	$887,938	$1,401,424	$810,312	$693,550	$731,506	$1,554,704	$2,394,845	$3,833,904	$604,795	$2,381,190	$2,297,845	$2
46710-Fishing Program Revenues	$2,095	$2,871	$1,933	$970	$1,471								
Total	**$1,868,814**	**$2,161,494**	**$2,394,658**	**$2,376,183**	**$3,046,366**	**$2,808,758**	**$3,671,589**	**$4,488,036**	**$5,851,642**	**$2,715,308**	**$4,544,769**	**$4,561,062**	**$4,**

Whale Rock Fund Expenditure Details

Account Category
All

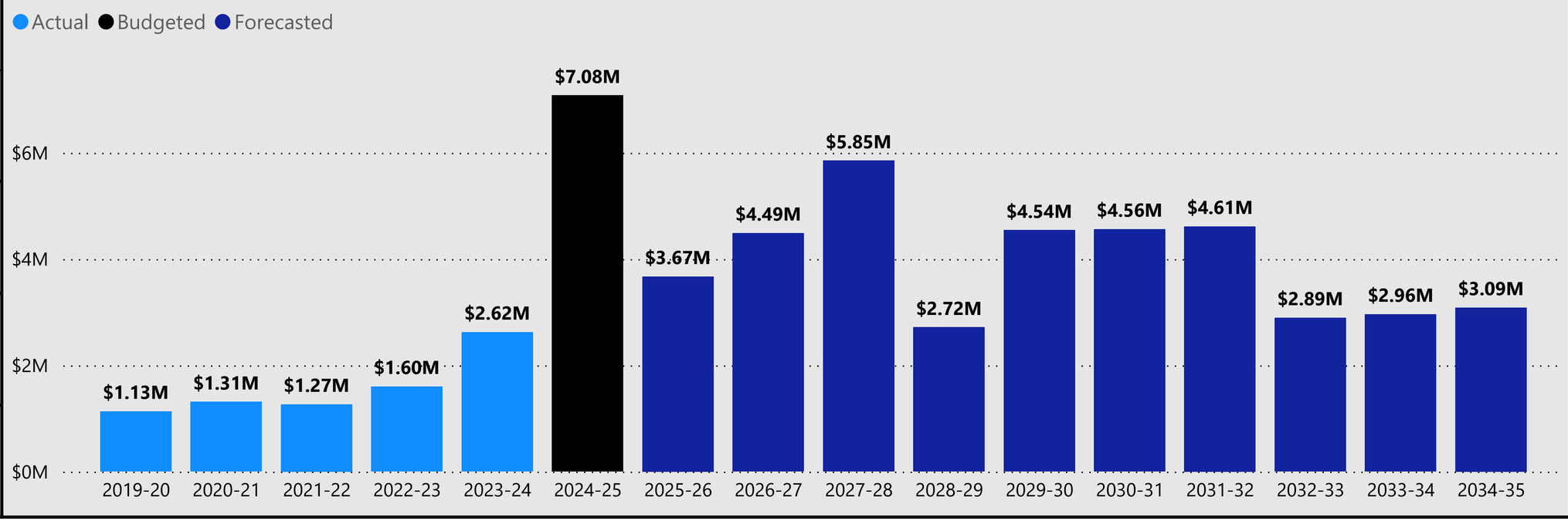
Account Subcategory
All

Concat Account
All

Item Description
All

Assigned Member Agency
All

Expenditure Actuals & Forecast



Concat Account	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
31022-Whale Rock CIP Reserve Contribution - City						$1,189,755	$762,357	$762,357	($2,202,000)	$189,923	$189,923
31023-Whale Rock CIP Reserve Contribution - Cal Poly						$585,006	$466,831	$466,831	($1,348,400)	$116,300	$116,300
31024-Whale Rock CIP Reserve Contribution - CA Men's Colony						$242,922	$155,657	$155,657	($449,600)	$38,778	$38,778
51001-Salaries - Regular	$343,044	$346,208	$370,480	$430,867	$434,659	$461,661	$471,415	$474,159	$500,424	$515,436	$530,899
51003-Salaries - Contract			$6,310		$3,109	$10,180	$0	$0	$0	$0	$0
51004-Salaries - Temporary			$157			$0	$0	$0	$0	$0	$0
51010-Overtime	$7,734	$1,342	$1,661	$1,044	$791	$4,000	$3,000	$3,000	$3,090	$3,183	$3,278
51017-Standby	$19,663	$19,167	$18,972	$18,539	$16,152	$22,245	$22,245	$22,245	$22,912	$23,600	$24,308
51018-Call Back		$687	$871	$2,709	$5,037	$6,000	$4,000	$4,000	$4,120	$4,244	$4,371
52001-Retirement Contributions	$33,020	$31,035	$31,662	$33,752	$40,619	$40,810	$38,553	$38,775	$39,939	$41,137	$42,371
52002-Retirement PARS - 401	$143	$159	$173	$200	$220	$218	$222	$222	$238	$246	$253
Total	**$1,131,950**	**$1,312,583**	**$1,267,077**	**$1,600,830**	**$2,623,105**	**$7,080,948**	**$3,671,589**	**$4,488,036**	**$5,851,642**	**$2,715,308**	**$4,544,769**

General Ledger & Forecast Detail

Account Category	Account Subcategory	Concat Account	Item Description	Fiscal Year
All	All	All	All	All

Charge Account	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
705.0000.44002		($561)												
705.1101.51001	$9	$41	$81											
705.1101.51017	$490	$434	$370											
705.1101.52001	$39	$34	$31	$11										
705.1101.53002		$1												
705.1101.55001	$6	$6	$5	$2										
705.2001.75002	$160,203	$183,978	$186,211											
705.2007.44002		($4,488)	($1,122)											
705.2007.44101	($71,545)	($818)	($4,603)	($75,127)	($183,176)									
705.2007.44107			$39,198	$17,408	($84,677)									
705.2007.44204	($4,862)		($3,366)	($4,488)	($5,895)									
705.6003.51001			$54											
705.6003.52001			$4	$3										
705.6003.55001			$1	$0										
705.6005.52001	($0)													
705.6201.31022						$1,189,755	$762,357	$762,357	($2,202,000)	$189,923	$189,923	$189,923	$189,923	$189,92
705.6201.31023						$585,006	$466,831	$466,831	($1,348,400)	$116,300	$116,300	$116,300	$116,300	$116,30
705.6201.31024						$242,922	$155,657	$155,657	($449,600)	$38,778	$38,778	$38,778	$38,778	$38,77
705.6201.44101			($34,985)	($3,032)		($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	($1,000
705.6201.44107			$107,755											
705.6201.44305	($7,613)													
705.6201.44310	($743)	($743)	($1,091)	($743)	($742)	($6,000)	($6,000)	($6,000)	($6,000)	($6,000)	($6,000)	($6,000)	($6,000)	($6,000
705.6201.45307			($260)											
705.6201.46703	$3,034													
705.6201.46706	($979,351)	($1,015,607)	($949,126)	($1,126,924)	($1,242,781)	($1,310,027)	($1,399,812)	($1,399,091)	($1,427,435)	($1,491,043)	($1,513,487)	($1,580,970)	($1,604,781)	($1,676,373
Total	**($736,864)**	**($848,912)**	**($1,127,581)**	**($775,353)**	**($423,261)**	**$4,272,189**	**($0)**	**($0)**	**($0)**	**$0**	**$0**	**($0)**	**$0**	**($0**

Capital Projects Details

Item Description	Notes	Fiscal Year
All	All	All

Item Description	2020	2021	2022	2023	2024
1000047-Fleet Replacements - Annual Asset Maintenance	$0	$0	$0	$0	
1000074-IT Replacements - Annual Asset Maintenance Account	$2,624	$1,637	$3,035	$243	
1000075-Major Facilities Maintenance - Annual Asset Maintenance Account	$0	$0	$0	$0	
1000176-Whale Rock Intake Valve Replacement	$0	$0	$0	$0	
1000181-Fleet Services Vehicle Lift	$0	$0	$0	$0	
1000521-Fleet Replacement: Utilities	$0	$0	$0	$0	
1000542-Water Treatment Plant Major Facility Maintenance	$0	$0	$0	$0	
2000075-Major Facilities Maintenance [1000075]					
2000176-Whale Rock Intake Valve Replacement [1000176]					
2000181-Fleet Services Vehicle Lift [1000181]					$2,000
2000521-Fleet Replacement: Utilities [1000521]					$20,215
2000602-Utilities IT Replacements [1000074]					
2000603-Enterprise IT Replacements [1000074]					$0
2000604-Network IT Replacements [1000074]					
2001009-Whale Rock Major Maintenance [91335]	$19,210	$125,511	$72,990	$89,897	$544,663
2001017-Whale Rock Pipe Assessment and Repairs [91617]					$3,000
2001019-Whale Rock Auto Control Valves [91718]					$7,227
200549-Whale Rock Pump Station Electrical Repairs (A and B) [1000549]					
200xxx-Emergency pipeline repair					
90069-Whale Rock Old Creek Habitat Plan (90069)	$0	$0	$0	$0	
90490-Water Distribution Telemetry System Upgrade (90490)	$8,432	$0	$0	$0	
91617-Whale Rock Pipe Assessment and Repairs (91617)	$30,000	$0	$289	$83,753	
91617-Whale Rock Transmission Pipeline					
91675-Whale Rock Boathouse Replacement (91675)	$2,928	$7,575	$0	$0	
91716-Whale Rock Boat Dock (91716)	$2,093	$0	$0	$0	
Total	**$84,591**	**$168,494**	**$76,025**	**$176,959**	**$577,105**

Report Owner: Shane Whittington
Description: To analyze current fund position, forecast long term fund position, and present the information in a way that is easily understood by internal staff.
Last Updated: 03/31/2025

3/31/2025
Updated with finalized Operating and Capital Expenses. Rebalanced revenue accounts accordingly. Assumes a $4M draw on Capital Reserves in FY28 for 1000549-01-Whale Rock Pump Station Rehab (A and B).
Updated unreserved fund balance to include an additional 20%--this amount was previously backed out as part of a operating reserve.

2/2/2025
Updated FY24 with actuals, FY25 with modified budgeted, and FY26-FY35 with forecasted.
Updated Lookup tables to include 2033-2035.
This may change as better information is made available--for example, IT projects are not validated, salaries and benefits need to be finalized, various operating accounts need to be confirmed, and a CIP reserve contributions/drawdowns need to be established. All table rows needing review contain the text "Needs Additional Review" in the Item Description.

1/22/2025
Updated query to unpivot 2033-2035. Deleted 2036-2039 for simplicity.
Add carryover projects to FY2025.
Fixed calcs in Lookup worksheet.
Add carryover POs (may not be complete?).

5/03/2024
Added audited financials for Audited Year End Fund Balance on the lookup page. This should equal the unrestricted net position in the audited financials. There was only a variance of $1.82 relative to what was calculated. This is immaterial.

3/26/2024
Adjusted 2001009-08 Roadway Pavement to revised construction totals as determined by MB and NE. Reduced the 2024-25 allocation from $520,000 to $414,960.

3/20/2024
Added budget changes relative to Council Consent Item 6f (3/19/2024). This action added funding to 2000075-09.01 Corp Yard Fuel Island Rehabilitation and pulled from completed projects.

3/12/2024
Changed the source data to include anticipated budget changes for 2024-25. The changes are listed below:
1. Added $15,000 to as an ongoing expense for non-member legal representation (61007).
2. Removed $20,000 from emergency pipeline repairs (61013). This was added as a CIP and increased to $30,000 (200xxx-Emergency Pipeline Repair).
3. Increased the machinery and equipment budget from $20,000 to $60,000 to reflect inflation and aging assets (62505).
4. Changed the allocation for 1000549-Whale Rock Pump Station Electrical Repairs (A and B) from $1,960,620 to $500,000 for study and design. $2,000,000 was added to 2025-26 for construction.
5. Added $520,000 for 2001009-08 Roadway Pavement.
6. Increased 2001009-03 Advanced Instrumentation and Safety Monitoring of Critical Infrastructure from $108,923 to $250,000.
7. Adjusted the City of SLO's pumping charges to reflect changes in water use strategies (61503 and 46711).
8. Adjusted Capital Reserve accounts to reflect a $505,000 drawdown in 2024-25 and a $1,455,000 drawdown in 2025-26 (31022, 31023, and 31024).
9. Rebalanced agency contributions to reflect proportional share relative to these changes (46706, 46707, 46711).

SUPPLEMENTAL AGREEMENT FOR CONSTRUCTION AND OPERATION OF THE WHALE ROCK PROJECT, SAN LUIS OBISPO COUNTY, CALIFORNIA

This agreement entered into this 12th day of December, 1960, between the State of California acting by and through the Director of Finance, hereinafter referred to as "STATE" and the City of San Luis Obispo, hereinafter referred to as "CITY".

W I T N E S S E T H:

WHEREAS, the State and the City entered into an agreement on the 7th day of November, 1957, for the construction and operation of a dam and reservoir in San Luis Obispo County, hereinafter referred to as the Whale Rock Project, and

WHEREAS, the agreement provides that after completion of the project the City shall operate and maintain it in a manner that is mutually satisfactory to the parties and as set forth in amendments and supplements to be entered into between the parties, and

WHEREAS, the agreement provides that it is the intent of the parties to execute amendments and supplements to said agreement which will include specific and detailed items related to the construction and operation of the project,

NOW, THEREFORE, in consideration of the mutually dependent promises of the parties hereto it is agreed as follows:

I. The Whale Rock Commission is hereby established. Its membership, internal organization, powers and duties are as follows:

A. Membership:

1. Voting Members:

(a) Director of Finance, State of California.

(b) Director of Education, State of California

(c) Director of Corrections, State of California

(d) Mayor, City of San Luis Obispo

(e) Administrative Officer, City of San Luis Obispo

(f) Director of Finance, City of San Luis Obispo

2. Non-Voting Members:

(a) Director of Water Resources, State of California

(b) Water Superintendent, City of San Luis Obispo

B. Internal Organization:

1. Any member may be represented at any meeting of the Commission by a duly authorized representative.

2. A quorum shall consist of a majority of voting members. The concurrence of two representatives of the State and two representatives of the City shall be required before any action can be taken by the Commission.

3. The Commission shall select one of its members as Chairman and one as Secretary, to serve at the

pleasure of the Commission.

4. The Commission shall hold regular annual meetings to consider and approve the budget for the next fiscal year and special meetings when called by the chairman, or by any three voting members, on five (5) days' notice.

5. All meetings shall be held in the City Hall of the City of San Luis Obispo unless otherwise specified in the notice of meeting.

C. Powers and Duties of the Commission:

1. Establish the policies with regard to the operation and maintenance of the project.

2. Contract for the sale of excess water from the project or rental of excess capacity of any project facilities, provided any such contract shall be subject to the approval of the City and the State. Any such sales or rental shall be made only on a year to year basis and the State and the City shall each annually declare in advance whether any excess is available for sale. In case of deficiency on the part of any project owner or owners, said project owner or owners shall have first call on the purchase of excess water, before such excess water is sold to outside agencies. The net income derived from such sales shall be credited to each agency in proportion to its percentage of the total excess available for sale, provided, however, that if the State or the City declares any water excess for less than a full year, or otherwise conditions its availability then the net income credited to said party shall be reduced to the extent that the

saleability of the excess water is affected by the condition imposed.

3. Consider and approve the annual budget for the project and any proposed amendments and allocate the annual cost in accordance with the proportionate use of facilities allocated to each participating agency as set forth in Table 3 on page 51 of the report issued by the State of California, Department of Water Resources, dated February, 1957, entitled "Report on Estimated Cost of Whale Rock Project", a copy of which is on file at the office of the Department of Water Resources in Sacramento, California.

4. Do all things otherwise necessary to conduct the business and affairs of the Whale Rock Project.

II. Operation of the Whale Rock Project.

A. City of San Luis Obispo, in accordance with the policies established by the commission and the provisions of the agreement dated November 7, 1957, between the State of California, acting by and through the Director of Finance, and the City of San Luis Obispo, and pursuant to the approved budget, shall operate and maintain the project, perform repairs and replacements thereon, and construct additions and improvements thereto, under the charter of the City of San Luis Obispo. Provided, however, this subsection shall not become effective until July 1, 1951 or sooner if the Commission determines the project is ready for operation.

B. Water within the entitlement of the parties

as set forth in the agreement dated November 7, 1957, between the State and the City, shall be delivered to the City, California State Polytechnic College and California Men's Colony (herein referred to as the participating agencies) at the times and in the quantities requested by each; provided, that if the total of the quantities requested will exceed the capacity of any project facility, the requests shall be adjusted so that the percentage of capacity of the facility to be utilized by each participating agency will not exceed the percentage of the capacity allocated to each in Table 3 of the Report referred to above.

C. Written advance notice shall be given the City of the dates and quantities of water requested, provided that oral requests may be made when necessary and confirmed in writing.

III. Fiscal Matters and Procedures

A. The City shall prepare the proposed annual budget in the form adopted by the Commission and distribute copies thereof to the members at least one month prior to annual meeting.

B. Allocation of Cost

1. Cost of electrical energy for pumping and any other costs that vary directly with the quantity of water delivered as determined by the Commission shall be allocated to the participating agencies on the basis of quantities of water delivered to each.

2. All other operation and maintenance

costs and costs of major repairs and replacements shall be allocated on the basis of percentages of capacity allocated to each participating agency in Table 3 of the Report referred to above.

3. The cost of providing water for downstream users shall be allocated on the same basis that the original cost of the dam was allocated.

4. Cost of additions and improvements shall be allocated as mutually agreed upon by the City and the State.

5. Moneys derived from the sale or lease of any project properties or facilities or other revenues shall be deposited in the city treasury in a separate account to the credit of the Whale Rock Project Fund and together with any interest thereon shall be applied first to pay direct costs incurred in producing the revenue, and second to the other operation and maintenance costs and costs of major repairs and replacements referred to in subparagraph 2 above of those facilities used to produce the revenue.

6. Any money in excess of project needs may be distributed to the agencies in proportion to their respective interests in such excess.

C. Payment and Expenditure of Project Funds

1. The participating agencies shall contribute quarterly in advance their allocated share of the costs. This contribution shall be deposited on or before the first day of each quarter in a separate account to the credit

of the Whale Rock Project Fund in the city treasury.

2. The City may withdraw and expend any monies in the Whale Rock Project Funds to pay the actual cost of project operation and maintenance, major repairs and replacements thereon, in accordance with the items set forth in the approved annual budget. Costs incurred by the participating parties and the Commission in connection with the project shall be part of the cost of project operation, if in accordance with the approved annual budget.

APPROVAL RECOMMENDED:
Department of Corrections

By Robert J. Smith
Chief, Management Services Division

APPROVAL RECOMMENDED:
Department of Education
Roy E. Simpson
By Lida Hagan, Deputy

APPROVED FOR FORM AND LEGALITY
ADMINISTRATIVE ADVISER
DEPARTMENT OF EDUCATION

APPROVAL RECOMMENDED:
Department of Water Resources

By James F. Wright
JAMES F. WRIGHT, Deputy Director
Administration and Management

STATE OF CALIFORNIA
John E. Carr, Director
Department of Finance

By J. H. Bringford
DEPUTY DIRECTOR OF FINANCE

CITY OF SAN LUIS OBISPO

By Jack Sa Terstein
MAYOR

ATTEST:

City Clerk

DEPARTMENT OF FINANCE
APPROVED
FEB 23 1961

DEPARTMENT OF EDUCATION
DIVISION OF STATE BUILDING

JM 1/9/61