

AGENDA
 IRVINE RANCH WATER DISTRICT
 ENGINEERING AND OPERATIONS COMMITTEE MEETING
 TUESDAY, APRIL 21, 2026

This meeting will be held in-person at the District’s headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Web: <https://irwd.webex.com/irwd/j.php?MTID=m67f401f70fd8332a7ee6b183fe231488>
 Meeting Number (Access Code): 2492 213 2953
 Meeting password: h5eSQz25Cew

PLEASE NOTE: Webex observers of the meeting will be placed into the Webex lobby when the Board enters closed session. Participants who remain in the “lobby” will automatically be returned to the open session of the Board once the closed session has concluded. Observers joining the meeting while the Board is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

CALL TO ORDER 1:30 p.m.

ATTENDANCE Committee Chair: Doug Reinhart _____
 Committee Member: John Withers _____

ALSO
PRESENT

Paul Cook	___	Kevin Burton	___	Wendy Chambers	___
Neveen Adly	___	Paul Weghorst	___	Steve Choi	___
Jim Colston	___	Jason Manning	___	Jose Zepeda	___
Eric Akiyoshi	___	Belisario Rios	___	Jacob Moeder	___
Brian Waite	___	Lori Rigby	___	Scott Giatpaiboon	___
_____	___	_____	___	_____	___
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_____	___	_____	___	_____	___
_____	___	_____	___	_____	___

PUBLIC COMMENT NOTICE

If you wish to address the Committee orally on any item, you may attend the meeting in person and submit a “speaker slip” to the Committee Chair. Forms are provided at the front of the Committee Room. Public comments are limited to three minutes per speaker on each subject. If you wish to submit written comments to the Committee, please submit your public comment in advance of the meeting by emailing comments@irwd.com before 5:00 p.m. on Monday, April 20, 2026, and your remarks will be added to the record at the meeting.

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted and determine which items may be approved without discussion.

ACTION

4. EASTWOOD RECYCLED WATER PUMP STATION ZONE A TO SYPHON AND SYPHON TO ZONE C EQUIPPING CONSULTANT SELECTION AND BUDGET INCREASE – LU / MOEDER / BURTON

Recommendation: That the Board authorize a budget increase in the amount of \$2,622,900 and authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$786,640 for engineering design services for the Eastwood Recycled Water Pump Station Zone A to Syphon and Syphon to Zone C Equipping, Project 11831.

5. CITY OF IRVINE GREAT PARK NORTHERN SECTOR, CULTURAL TERRACE, AND GATEWAY RESIDENTIAL VILLAGE CAPITAL FACILITIES – KUAN / RIOS / BURTON

Recommendation: That the Board authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD facilities related to the Great Park Northern Sector and Cultural Terrace Development; authorize the General Manager to accept the City of Irvine's construction contract with Sukut Construction, LLC in the amount of \$2,407,817.13 for the Great Park Framework Plan Capital Facilities project; authorize the addition of the Great Park Framework Plan Domestic Water Capital Facilities, Project 13463, in the amount of \$985,000 to the FY 2025-26 Capital Budget; authorize the addition of the Great Park Framework Plan Recycled Water Capital Facilities, Project 13464, in the amount of \$1,605,000 to the FY 2025-26 Capital Budget; authorize the addition of the Great Park Framework Plan Sanitary Sewer Capital Facilities, Project 13465, in the amount of \$867,000 to the FY 2025-26 Capital Budget; and authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD facilities related to the Gateway Residential Village Development.

ACTION (Continued)

6. HARDING CANYON DAM ALTERNATIVES ANALYSIS CONSULTANT SELECTION – SANCHEZ / MOEDER / BURTON

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Geosyntec, Inc. in the amount of \$277,700 for engineering design services for the Harding Canyon Dam Alternatives Analysis, Project 12513.

7. SYPHON RESERVOIR IMPROVEMENT PROJECT CONSULTANT SELECTIONS – MOEDER / LE / NYE / BURTON / WEGHORST

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$8,864,950 for engineering support during construction; and authorize the General Manager to execute a Professional Services Agreement with ESA in the amount of \$3,990,644 in support of environmental compliance monitoring during construction of the Syphon Reservoir Improvement Project, Project 03808.

8. LOCAL RESOURCES PROGRAM FUNDING FOR SYPHON RESERVOIR IMPROVEMENT PROJECT – HATCH / WEGHORST

Recommendation: That the Board authorize the General Manager to execute an agreement with Metropolitan Water District of Southern California for Local Resource Program funding for the Syphon Reservoir Improvement Project.

OTHER BUSINESS

9. Directors' Comments

10. Adjournment


Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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April 21, 2026

Prepared by: M. Lu / J. Moeder

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

EASTWOOD RECYCLED WATER PUMP STATION ZONE A TO SYPHON AND SYPHON TO ZONE C EQUIPPING CONSULTANT SELECTION AND BUDGET INCREASE

SUMMARY:

IRWD's Eastwood Recycled Water Pump Station (ERWPS) is a multi-zone pump station that enables the District to convey recycled water to Zones A, B, C, and the future Syphon Reservoir. The ERWPS is currently equipped to provide recycled water from Zone A to Zones B and C. Prior to commencing startup activities of the new water filtration plant that is being constructed with the Syphon Reservoir Improvement Project, IRWD needs to complete improvements at ERWPS that include constructing a Zone A to Syphon pump station and a Syphon to Zone C pump station. Staff requested a proposal from AECOM to complete the design of the ERWPS Improvement project. Staff recommends that the Board:

- Authorize a budget increase in the amount of \$2,622,900 for Project 11831; and
- Authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$786,640 for engineering design services for the Eastwood Recycled Water Pump Station Zone A to Syphon and Syphon to Zone C Equipping project.

BACKGROUND:

The ERWPS provides IRWD with the ability to meet the growth in demands in the recycled water Zone B and Zone C systems. With the purpose of meeting the growth in demands in different recycled water zones and to convey recycled water to the future Syphon Reservoir, the ERWPS is a multi-zone pump station that consists of the Zone A to B, Zone A to C, Zone A to Syphon Reservoir, and Syphon Reservoir to Zone C booster pump stations. In 2018, AECOM completed the design of the ERWPS, which included the entire pump station building, all site improvements, all buried infrastructure, and the mechanical and electrical components necessary for the Zone A to B and the Zone A to C booster pump stations and provisions for the future Zone A to Syphon Reservoir and the Syphon Reservoir to Zone C booster pump stations. In 2021, IRWD completed construction of all the improvements with exception of the equipping for the Zone A to Syphon and Syphon to Zone C pump stations.

Since completing construction of the pump station, staff has advanced the Syphon Reservoir Improvement project, which is now entering the construction phase. With the Syphon Reservoir Improvement project scheduled to start construction in Summer 2026 and to be complete in Fall 2031, the final phase of the ERWPS needs to be completed prior to filling Syphon Reservoir and testing the Syphon Reservoir Filtration Treatment Plant. To ensure the ERWPS improvements do not impact the completion schedule of the Syphon Reservoir Improvement project, it is now necessary to start preparing the design package for the ERWPS Zone A to Syphon and the Syphon to Zone C Equipping project.

Consultant Selection:

AECOM was the Engineer of Record for the original construction of the ERWPS, as well as the design of the Syphon Reservoir Improvement project. AECOM’s demonstrated knowledge and familiarity with both projects are valuable to the preparation of the design for the ERWPS Zone A to Syphon and Syphon to Zone C Equipping project. AECOM provided engineering support during construction of the ERWPS and has unique project knowledge on several components of the facility that were specifically designed with consideration of the ultimate phase of the project, such as the additional pumps, electrical, controls, instrumentation, and HVAC improvements. In February 2026, staff negotiated a proposal and fee from AECOM for engineering design services for the project. Staff recommends awarding a Professional Services Agreement to AECOM in the amount of \$786,640 to complete the design. AECOM’s sole source proposal is provided in Exhibit “A”.

FISCAL IMPACTS:

Staff recommends that the Eastwood Recycled Water Pump Station Zone A to Syphon and Syphon to Zone C Booster Pump Station Equipping, Project 11831, be added to the FY 2025-26 Capital Budget with a regional recycled water standard split. A budget increase in the amount of \$2,622,900 is required to fund the design and construction as shown in the table below:

Project No.	Current Budget	Addition <Reduction>	Total Budget
11831	\$2,747,850	\$2,622,900	\$5,370,750

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA) and in conformance with California Code of Regulations Title 14, Chapter 3, Article 6. A Notice of Intent to adopt a Mitigated Negative Declaration was filed with the County of Orange on October 24, 2017. Pursuant to State Guideline § 15073, the IS/MND was made available for public review for a period of 30 days from October 24, 2017, through November 22, 2017. The IS/MND was adopted by the IRWD Board of Directors at its January 22, 2018 meeting. A Notice of Determination was filed with the Orange County Clerk/Recorder and the California State Clearinghouse on January 23, 2018.

RECOMMENDATION:

That the Board authorize a budget increase in the amount of \$2,622,900 and authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$786,640 for engineering design services for the Eastwood Recycled Water Pump Station Zone A to Syphon and Syphon to Zone C Equipping, Project 11831.

LIST OF EXHIBITS:

Exhibit “A” – AECOM Proposal and Fee

March 31, 2026

Mr. Jacob Moeder, PE
Engineering Manager – Dams & Storage
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

Subject: Proposal for Engineering Services – Eastwood Recycled Water Pump Station Modifications

Dear Jacob,

AECOM Technical Services, Inc. (AECOM) is pleased to submit this proposal to provide design, bid, and construction-phase engineering services for the Eastwood Recycled Water Pump Station (RWPS) Modifications Project. These services will be provided to the Irvine Ranch Water District (IRWD), hereafter referred to as the District.

The Eastwood RWPS, designed by AECOM and constructed between 2016 and 2021, was originally built with provisions for future integration with the Syphon Reservoir system. While the current station provides pumping from Zone A to Zones B and C, several facilities identified in the original Preliminary Design Report (PDR) were intentionally deferred pending advancement of the Syphon Reservoir Improvement Project.

With the District now moving forward with this next phase of system integration, the purpose of this project is to complete the Syphon-related pumping and pressure-control functions within the existing RWPS building. These improvements will enable the full multi-zone recycled water operational flexibility envisioned in the original hydraulic strategy.

PROJECT UNDERSTANDING

Based on our review of the PDR, record drawings, and ongoing coordination with IRWD, AECOM understands that this design effort will include the following major components:

1. Zone A → Syphon Reservoir Pumping

Design and implementation of the future Zone A to Syphon pump station, consisting of three duty and one standby vertical turbine pumps equipped with VFDs. These pumps will convey recycled water from Zone A to Syphon Reservoir for seasonal storage and must operate safely across the reservoir's 106-ft operating range, requiring detailed hydraulic evaluation and appropriate control integration.

2. Syphon-Related Pressure Control and Bypass Facilities

In addition to the new pumping system, several Syphon-related pressure-control assemblies identified in the PDR but not yet constructed will be finalized and integrated into the RWPS, including:

- **Zone A → Syphon Surge Relief Assembly**
This assembly provides protection for both the Zone A system and the Syphon discharge header during transient events. All surge analyses and surge tank improvements—covering both existing and future conditions—have already been completed. The proposed work simply incorporates a surge relief assembly into the existing pump station to serve the new Zone A to Syphon pumps.
- **Syphon → Zone A PRV Assembly**
Allows controlled return of water from Syphon Reservoir into Zone A.
- **Syphon → Zone A High-Pressure Bypass Assembly**
Provides a relief pathway to Zone A during high reservoir levels or abnormal system conditions.
- **Syphon → Zone B PRV Assembly**
Allows controlled delivery of water from Syphon Reservoir into Zone B during non-pumping conditions.

These assemblies were conceptually defined in the PDR and partially integrated into the existing yard piping layout as well as the Mechanical drawings. During the site visit, IRWD expressed the need to incorporate flow control for some of the relief lines. The proposed work will include final hydraulic sizing, mechanical design, structural detailing, electrical power and controls design, and SCADA programming.

3. Syphon → Zone C Pumping (Pump Modifications & Additions)

The PDR anticipated reassigning certain Zone A → Zone C pumps and installing additional pumps to support Syphon → Zone C delivery. This project will complete that transition by:

- Installing new Syphon → Zone C pumps in the designated pump locations (two pumps)
- Replacing impellers on existing units to meet the Syphon → Zone C duty point (two pumps) complete with associated suction side modifications.
- Integrating VFDs where required to accommodate the full Syphon Reservoir operating range

4. Pre-selection / Pre-negotiation of new pumps and for modification of existing pumps to be repurposed

To ensure that all pumps at the Eastwood facility are supplied by a single manufacturer, the pump procurement process will be initiated during the design phase and pre-negotiated. Complete (100%) specifications for new pumps and for modifications to existing pumps will be developed early in the design and coordinated with the pump manufacturer (Sulzer) to provide price certainty. Upon approval, the finalized procurement package will be assigned to the Contractor for execution.

PROJECT TEAM

AECOM's proposed team is composed of staff highly familiar with the Eastwood RWPS and the District's operational and design standards.

- **Project Manager** – Bryan Paine, PE
- **Design Manager** – Jay Jayakumar, PE
- **Project Engineer** – Ivy Sanders, PE
- **Electrical and I&C Engineering** – Allen Randall, PE; Tony Cortez, PE; Larry Pendergast
- **Structural Engineering** – Dale Wah, PE, SE; David Kuang, PE, SE
- **CAD & Engineering Support Staff** – Experienced with IRWD pump station projects

Several of these team members are currently supporting the District on the Syphon Reservoir Improvement Project and Santiago Creek Dam Improvement Project. Bryan served as Project and Design Manager for the original Eastwood RWPS.

SCOPE OF WORK

Task 1 – Project Management

Final design will be completed in accordance with IRWD's Design Process Manual and will include:

Project Management. Conduct project management in alignment with scope, schedule, and budget; provide regular communication with IRWD and stakeholders; implement AECOM's Quality Management System. This includes:

- Maintaining a Microsoft Project Gantt schedule and budget tracking summary (per task) with weekly and monthly progress reporting.
- Weekly status emails summarizing recent work and planned activities.
- Monthly progress reports with detailed summaries of prior and upcoming work, plus updated budget status. These reports will be included with invoices.
- Copying IRWD staff on all correspondence.
- Submitting monthly invoices per contract requirements.

Meetings. Schedule and lead project meetings to address design, operational, and maintenance issues. Provide agendas before meetings and minutes within five (5) working days after. Attend:

- Eighteen (18) one-hour virtual monthly progress meetings
- One (1) two-hour in-person workshop for the Design Validation Memo
- One (1) two-hour design review meeting per design milestone:
 - One (1) two-hour meeting for 60% Design

- One (1) two-hour meeting for 90% Design
- One (1) two-hour meeting for 100% Design

Site Visits. Five (5) one-hour site visits to verify site and equipment conditions and to discuss improvements with District staff.

Task 2 – Design Validation Memorandum

Draft Design Validation Memo. Prepare the draft memorandum documenting the project background, design basis, and validation of hydraulic, mechanical, electrical, and structural assumptions. The memo will confirm compatibility with the Syphon Reservoir Improvement Project. The memo will be submitted in electronic PDF format via OneDrive.

Final Design Validation Memo. Prepare the final memorandum incorporating District comments and a comment-resolution log.

Task 3 – Final Design (60%, 90%, 100%, Bid Submittals)

Construction Plans. Prepare AutoCAD 2025 plans (NCS V4.0 layering, IRWD 22x34 format) at 60%, 90%, 100%, and Bid submittals. Provide electronic PDF files via OneDrive for District review. AECOM will prepare a comment resolution form and provide written responses to all District comments.

Drawing List:

Sheet Number	Drawing Number	Sheet Title
1	G-1	Title Sheet
2	G-2	Location Map, Sheet Index, and Vicinity Map
3	G-3	Notes, Symbols, Legend, and Abbreviations
4	G-4	Construction Notes
5	D-1	Demolition Plan
6	D-2	Demolition Sections
7	D-3	Demolition Details – 1
8	D-4	Demolition Details – 2
9	C-1	Process Piping Plan
10	C-2	Process Piping Profiles
11	C-3	Civil Details
12	P-1	Plumbing Details
13	M-1	Mechanical Standard Symbols
14	M-2	Pump Room Piping Plan
15	M-3	Pump Room Piping Sections - 1
16	M-4	Pump Room Piping Sections - 2
17	M-5	Mechanical Details - 1
18	M-6	Mechanical Details - 2
19	H-1	HVAC Equipment Schedule, Plan, and Details
20	E-1	Standard Electrical Symbols and Abbreviations
21	E-2	Electrical Site Plan
22	E-3	Single Line Diagram -1
23	E-4	Single Line Diagram -2

24	E-5	Panel Elevations -1
25	E-6	Panel Elevations -2
26	E-7	Electrical Room Power Plan
27	E-8	Electrical Room Controls Plan
28	E-9	Pump Station Power Plan
29	E-10	Pump Station Control Plan
30	E-11	Conduit Schedule
31	E-12	Schematic Diagram
32	E-13	Electrical Details - 1
33	E-14	Electrical Details - 2
34	I-1	Installation Legend
35	I-2	Instrument Symbols, Abrev, Notes
36	I-3	Communication Block Diagram Modifications
37	I-4	P&ID – 1
38	I-5	P&ID – 2
39	I-6	P&ID – 3
40	I-7	Station PLC-100 P&ID

Project Manual. Prepare in standard IRWD format using latest templates and for the 60%, 90%, 100%, and Bid submittals. Provide tailored Special Provisions, new technical sections as needed, and an Appendix with standard construction forms, District holidays, and related content. Provide electronic MS Word and PDF versions via OneDrive.

Specification List:

Number of Spec	Spec. Number	Spec Title
1	01	Bid Documents
2	02	Contract Documents
3	03	General Provisions
4	04	Section 0 – Special Provisions
5	05	Section 1 - General Requirements
6	02221	Demolition, Salvage, And Abandonment
7	02223	Trenching, Backfilling, and Compacting
8	02578	Pavement Removal and Replacement
9	03300	Concrete
10	09900	Painting And Coatings
11	11291	Vertical Turbine Booster Pumps
12	15006	Pipe Supports
13	15041	Chlorination For Disinfection
14	15042	Hydrostatic Testing of Pressure Pipelines
15	15051	Installation Of Pressure Pipelines
16	15065	Stainless Steel Pipe
17	15076	Cement-Mortar Lined and Coated Steel Pipe
18	15089	Combination Air Release and Vacuum Relief Valves
19	15100	Manual Valves

20	15120	Hydraulically Controlled Diaphragm-Actuated Valves
21	15151	Facilities Identification
22	15162	Flexible Pipe Couplings And Expansion Joints
23	15990	Testing, Adjusting, And Balancing
24	16010	General Electrical Requirements
25	16051	Miscellaneous Electrical Devices
26	16110	Raceways, Pull Boxes, and Fittings
27	16120	Conductors And Cables
28	16135	Cabinets And Enclosures
29	16140	Switches And Receptacles
30	16150	Electric Motors
31	16155	Low Voltage Motor Control
32	16230	Low Voltage Switchgear
33	16231	Transient Voltage Surge Suppression
34	16260	Variable Frequency Drive
35	17000	General Instrumentation Control Requirements
36	17020	Vibration Monitoring Equipment
37	17110	Identification Tags
38	17300	Plc And Programmable Operator Interfaces
39	17332	Instrumentation And Control System Testing
40	17333	Instrumentation And Control System Commissioning
41	-	Appendix

Engineer’s Opinion of Probable Construction Cost (OPCC). AECOM’s professional estimator team will prepare an OPCC for the 60%, 90%, 100%, and Bid submittals. Estimates will be developed using vendor quotes, RSMeans Costworks, Caltrans Cost Data Books, recent IRWD bids, and comparable Southern California pump station projects. Provide electronic PDF files of the OPCC via OneDrive.

Construction Schedule. AECOM’s Project Manager will prepare a construction schedule and sequencing plan for the 60%, 90%, 100%, and Bid submittals. It will be developed using previous project examples and experienced construction experts. Provide electronic PDF files of the schedule via OneDrive.

Task 4 – Bid Phase Services

Pre-Bid Meeting. Attend pre-bid meeting with prospective bidders, present a PowerPoint design briefing to bidders, and perform one (1) site walk.

Bid Addenda, Address Bidder Questions, and Conformed Construction Documents. Provide written responses to bidder questions and provide up to five (5) drawing and Project Manual addendums according to the District’s standards with revised sheets. After the bid phase is completed, AECOM will prepare conformed documents for the drawings and Project Manual, which will incorporate all changes in the bid addenda.

Task 5 – Construction Phase Services

Construction Meetings. Attend up to twelve (12) one-hour virtual meetings with Contractors to discuss issues, schedule updates, and RFI's.

Contractor's RFI Responses. AECOM will respond to twenty (20) contractor requests for information (RFIs). AECOM will maintain a log of RFIs using IRWD standard submittal log. AECOM will return responses to IRWD within seven calendar days or earlier per the contract requirements.

Shop Drawing Reviews. AECOM has budgeted for the review of forty (40) shop drawing submittals and twenty (20) shop drawing resubmittals. Submittals will be reviewed for completeness and conformity with the contract documents. AECOM will provide comments on the IRWD shop drawing transmittal form and/or the submittal electronically using Adobe PDF Professional. AECOM will maintain a log of submittals using IRWD standard submittal log. AECOM will return comments to IRWD within fourteen calendar days or earlier per the contract requirements.

Plan Revisions. AECOM has budgeted forty (40) hours of staff time for minor plan revisions to the construction drawings.

Site Visits. AECOM has budgeted for five (5) site visits of one hour each during construction.

Record Drawings. AECOM will prepare record drawings at construction completion, using the Contractor's and IRWD Inspector's red lines. AECOM will prepare final record drawings as AutoCAD and Adobe PDF electronic files submitted electronically via Microsoft OneDrive. We assume that mylar and paper copies of the record drawings are not required.

SCHEDULE

Following receipt of the Notice to Proceed and comments on preceding deliverables, AECOM anticipates the following durations for each task:

- Draft Design Validation Memo – 6 weeks
- Final Design Validation Memo – 2 weeks
- 60% Plans, Project Manual, and OPCC – 6 weeks
- 90% Plans, Project Manual, and OPCC – 4 weeks
- 100% Plans, Project Manual, and OPCC – 4 weeks
- Final/Bid Plans, Project Manual, and OPCC – 4 weeks
- Record Drawings – 3 weeks after receipt of all inputs

ASSUMPTIONS

1. Design will be completed within 9 months; bid and construction within 12 months.
2. If delays outside AECOM's control occur, AECOM reserves the right to request adjustments to labor hours and/or billing rates with District approval.

Mr. Jacob Moeder, PE
Eastwood Recycled Water Pump Station Modifications
March 31, 2026

FEE ESTIMATE

Task No.	Task Description	Budget Estimate
1.	Project Management	\$161,670
2.	Design Validation Memo (Draft/Final)	\$73,940
3.	Final Design	\$343,460
4.	Bid Phase Services	\$31,470
5.	Construction Phase Services	\$176,100
	TOTAL	\$786,640

If you have any questions, please contact me at (714) 483-1354 or bryan.paine@aecom.com.

Sincerely,

AECOM Technical Services, Inc.



Bryan C. Paine, PE
Project Manager, Vice President

Attachment:

Attachment A – AECOM’s Estimated Cost Breakdown of Total Fee

Attachment A: AECOM's Estimated Cost Breakdown of Total Fee
Irvine Ranch Water District (IRWD)
Eastwood Recycled Water Pump Station Modifications - Design, Bid, and Construction Phase Services
March 31, 2026

Task No.	Task Description	AECOM Labor Hours ¹							AECOM TOTAL HOURS	AECOM LABOR COSTS	OTHER DIRECT COSTS (0% MARK-UP) ²	TOTAL	
		Project Manager	Principal Engineer, QA/QC	Senior Engineer	Project Engineer	Senior CAD Designer	Senior Staff Engineer, Senior Estimator	Staff Engineer / CAD Technician					Project Controls / Assistant
		Bryan Paine	Jay Jayakumar, Allen Randall, Dale Wah	David Kuang, Tony Cortez, Larry Pendergast	Ivy Sanders	Mike Thorne, Mark Vargas	Ifrah Azmi, Tanzim Ahmed, Bill Davis	Sam Espinoza, Dan Dekane					Liz Pineda
		\$375	\$380	\$320	\$230	\$225	\$180	\$145	\$160				
Task 1 - Project Management													
1.1	Project Management (21 months, 8 hours/mo)	168							168	336	\$ 89,880		\$ 89,880
1.2	Project Meetings									-	-		-
	Monthly Progress Meetings (9 meetings of 1 hours, virtual)	18	18	18	18					72	\$ 23,490		\$ 23,490
	Design Validation Workshop (1 meeting of 2 hours, in-person)	6	6	6	6		6			30	\$ 8,910	\$ 100	\$ 9,010
	60% Design Workshop (1 meeting of 2 hours, in-person)	4	8	8	6					26	\$ 8,480	\$ 100	\$ 8,580
	90% Design Workshop (1 meeting of 2 hours, in-person)	4	8	8	6					26	\$ 8,480	\$ 100	\$ 8,580
	100% Design Workshop (1 meeting of 2 hours, in-person)	4	8	8	6					26	\$ 8,480	\$ 100	\$ 8,580
1.3	Site Visits (5 visits)	10	10	10	10					40	\$ 13,050	\$ 500	\$ 13,550
	SUBTOTAL TASK 1	214	58	58	52		6		168	556	\$ 160,770	\$ 900	\$ 161,670
Task 2 - Design Validation Memo													
2.1	Draft Validation Memo	12	40	40	80	8	20	24		224	\$ 59,780		\$ 59,780
2.2	Final Validation Memo	4	8	8	12	4	6	16		58	\$ 14,160		\$ 14,160
	SUBTOTAL TASK 2	16	48	48	92	12	26	40		282	\$ 73,940	\$ -	\$ 73,940
Task 3 - Final Design (60%, 90%, 100%, Bid Submittals)													
3.1	Construction Drawings (40 sheets)	60	100	100	240	80	200	480		1260	\$ 271,300		\$ 271,300
3.2	Project Manual	16	20	20	80		20			156	\$ 42,000		\$ 42,000
3.3	Engineer's Opinion of Construction Cost		8			80				88	\$ 21,040		\$ 21,040
3.4	Construction Schedule	8	4		20					32	\$ 9,120		\$ 9,120
	SUBTOTAL TASK 3	84	132	120	340	160	220	480		1,536	\$ 343,460	\$ -	\$ 343,460
Task 4 - Bid Phase Services													
4.1	Pre-Bid Meeting, Design Briefing, Site Visit	4	4		8					16	\$ 4,860	\$ 50	\$ 4,910
4.2	Bid Addenda, Address Bidder Questions, and Conformed Construction Documents	8	16	16	20	12	12	20		104	\$ 26,560		\$ 26,560
	SUBTOTAL TASK 4	12	20	16	28	12	12	20		120	\$ 31,420	\$ 50	\$ 31,470
Task 5 - Construction Phase Services													
5.1	Construction Meetings (12 meetings of 1 hour, virtual)	12	12	12	12					48	\$ 15,660		\$ 15,660
5.2	Contractor's RFI Responses (20 RFIs)	20	20	16	16		40			112	\$ 31,100		\$ 31,100
5.3	Shop Drawing Reviews (40 submittals, 20 resubmittals)	20	40	40	80	80	80			340	\$ 86,300		\$ 86,300
5.4	Plan Revisions (40 hours)	2	4	4	8	2		20		40	\$ 8,740		\$ 8,740
5.5	Site Visits (5 visits)	10	10	10	10					40	\$ 13,050	\$ 250	\$ 13,300
5.6	Record Drawings	4	8	8	20	4	8	48		100	\$ 21,000		\$ 21,000
	SUBTOTAL TASK 5	68	94	90	146	86	128	68		680	\$ 175,850	\$ 250	\$ 176,100
	TOTAL	394	352	332	658	270	392	608	168	3,174	\$ 785,440	\$ 1,200	\$ 786,640

Notes & Assumptions:


- 1.) The billing rates for AECOM are escalated to the mid-point of the project and will be held for the duration of the contract.
- 2.) Other direct costs include mileage to project meetings and site visits and document reproduction.

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April 21, 2026

Prepared by: A. Kuan / B. Rios

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

CITY OF IRVINE GREAT PARK NORTHERN SECTOR, CULTURAL TERRACE, AND GATEWAY RESIDENTIAL VILLAGE CAPITAL FACILITIES

SUMMARY:

The City of Irvine is proceeding with development of the Great Park Northern Sector, Cultural Terrace, and the Gateway Residential Village project which includes the construction of streets, storm drains, domestic water, sanitary sewer, and recycled water improvements. As part of the developments, the City will construct IRWD capital facilities under two separate proposed Reimbursement Agreements. Staff recommends that the Board:

- Authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD Facilities Related to the Great Park Northern Sector and Cultural Terrace Development;
- Authorize the General Manager to accept the City of Irvine's construction contract with Sukut Construction, LLC in the amount of \$2,407,817.13 for the Great Park Framework Plan Capital Facilities project;
- Authorize the addition of the Great Park Framework Plan Domestic Water Capital Facilities, Project 13463 in the amount of \$985,000 to the FY 2025-26 Capital Budget;
- Authorize the addition of the Great Park Framework Plan Recycled Water Capital Facilities, Project 13464 in the amount of \$1,605,000 to the FY 2025-26 Capital Budget;
- Authorize the addition of the Great Park Framework Plan Sanitary Sewer Capital Facilities, Project 13465 in the amount of \$867,000 to the FY 2025-26 Capital Budget; and
- Authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD Facilities Related to the Gateway Residential Village Development.

BACKGROUND:

City of Irvine Great Park Northern Sector and Cultural Terrace:

The City of Irvine is moving forward with the development of the Great Park which includes the Northern Sector and Cultural Terrace within Planning Area (PA) 51. The initial phase of the Northern Sector includes the Great Park Framework Plan which builds backbone street and utilities in a loop road surrounding the future lake and amphitheater. Future construction projects will build out remaining IRWD Capital Facilities in the Northern Sector and Cultural Terrace. The Northern Sector is bound by Cadence to the north, the Great Park Sports Complex to the west, Chinon to the east, and Marine Way to the south. The project location map is shown as Exhibit "A". As part of the Great Park Framework Plan, the City will design and construct IRWD's capital domestic water, sanitary sewer, and recycled water improvements. The required IRWD capital facilities are documented in the September 2011 PA 51 Sub-Area Master Plan Update and all subsequent addendums and updates prepared by Stantec.

The design and construction of the IRWD facilities will be performed under the terms of a proposed Reimbursement Agreement (RA). The RA, which covers capital facilities in The Great Park Northern Sector and Cultural Terrace, is attached as Exhibit “B” and has been reviewed by IRWD’s legal counsel.

The Great Park Framework Plan:

The Great Park Framework Plan Capital Facilities project consists of installing approximately 3,188 feet of 12-inch domestic water pipeline, 1,744 feet of 15-inch and 785 feet of 12-inch sanitary sewer main, and 10,413 feet of 8-inch recycled water pipeline within the Loop Road of the Northern Sector. The City retained Huitt Zollars to prepare the plans and received bids from nine contractors. The City recommends awarding the construction contract to the low bidder, Sukut Construction, LLC, for a bid amount of \$2,407,817.13 as shown in Exhibit “C.” In addition, the City has received consultant proposals for civil engineering design. All other costs will be covered by the City’s Administration Fee which includes but is not limited to surveying, compaction testing, and geotechnical services. Staff has reviewed the consultant proposal and the construction bids and finds the amounts to be acceptable. A summary of the project costs is shown below:

Construction (Sukut)	\$2,407,817.13
Civil Engineering Design (Huitt-Zollars)	\$ 131,721.00
City of Irvine Administration Fee (4%)	\$ 96,312.69
	<u>\$2,635,850.82</u>

City of Irvine Gateway Residential Village Development:

The City of Irvine is moving forward as master developer in partnership with Brookfield Properties for the Gateway Residential Village project within PA 2. The Gateway Residential Village includes 1,360 medium-high density and high-rise density residential dwelling units and is bound by Jeffrey Road to the North, Irvine Ranch Conservancy Native Seed Farm to the East, Bee Canyon Access Road to the South, and Portola Parkway to the South. The project location map is shown as Exhibit “D.” As part of this development, the City will design and construct IRWD’s capital domestic water, sanitary sewer, and recycled water improvements. The required IRWD capital facilities are documented in the October 2025 Gateway Village Sub-Area Master Plan and all subsequent addendums and updates prepared by Stantec.

The design and construction of the IRWD facilities will be performed under the terms of a proposed RA. The RA, which covers capital facilities in the Gateway Residential Village development, is attached as Exhibit “E” and has been reviewed by IRWD’s legal counsel.

FISCAL IMPACTS:

Staff requests the addition of Projects 13463, 13464, and 13465 to the FY 2025-26 Capital Budget as follows:

<u>Project No.</u>	<u>Current Budget</u>	<u>Addition <Reduction></u>	<u>Total Budget</u>
13463	\$0	\$ 985,000	\$ 985,000
13464	\$0	\$1,605,000	\$1,605,000
13465	\$0	\$ 867,000	\$ 867,000
Total	\$0	\$3,457,000	\$3,457,000

ENVIRONMENTAL COMPLIANCE:

Construction of capital domestic water, sewer, and recycled water facilities for the Great Park Framework Plan Development and the Irvine Gateway Development is subject to CEQA. In conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, an Environmental Impact Report was certified by the City of Irvine, the lead agency on May 27, 2003 (SCH# 2002101020) and November 12, 2025 (SCH# 2024100742), respectively.

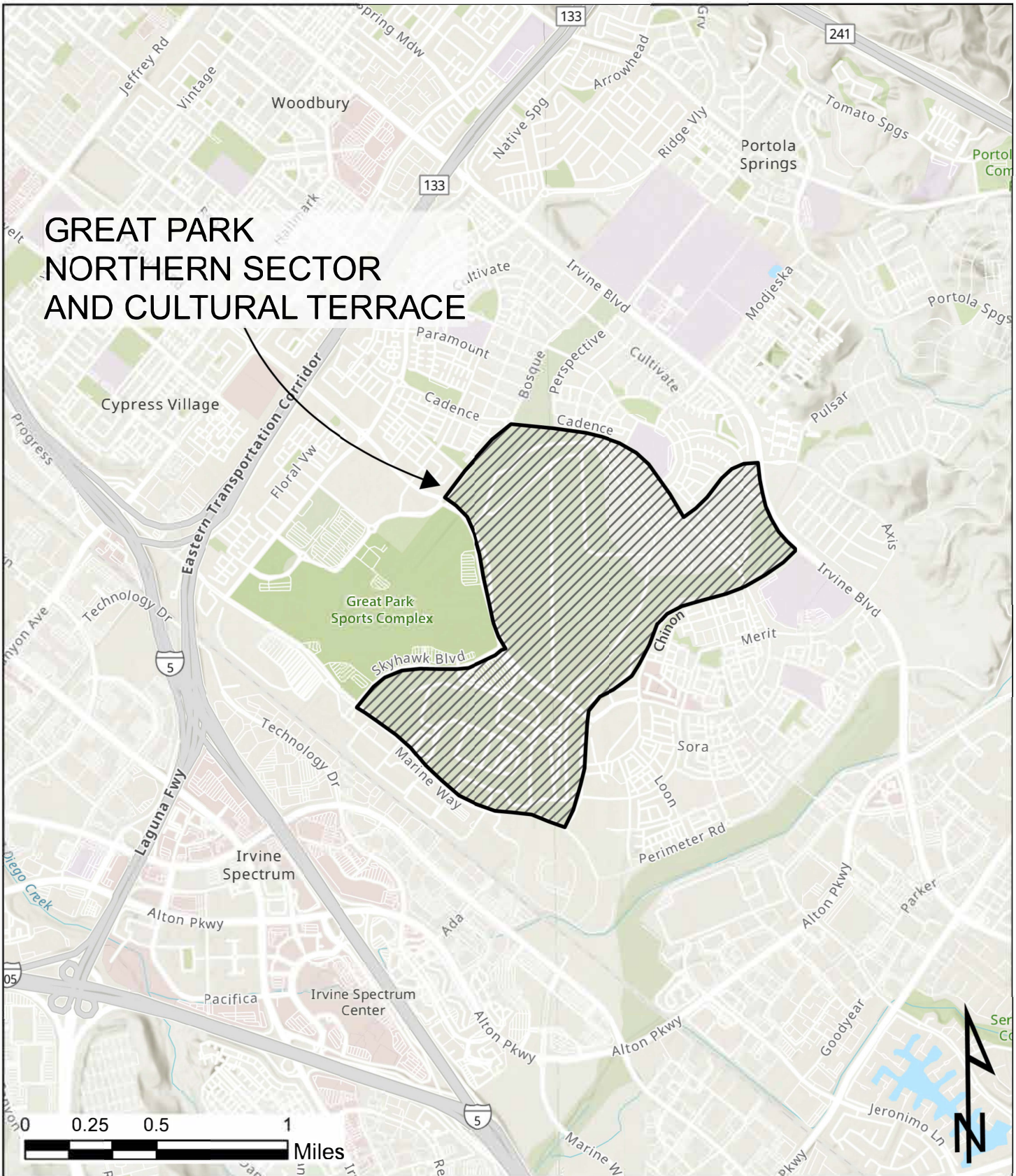
RECOMMENDATION:

That the Board authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD facilities related to the Great Park Northern Sector and Cultural Terrace Development; authorize the General Manager to accept the City of Irvine's construction contract with Sukut Construction, LLC in the amount of \$2,407,817.13 for the Great Park Framework Plan Capital Facilities project; authorize the addition of the Great Park Framework Plan Domestic Water Capital Facilities, Project 13463, in the amount of \$985,000 to the FY 2025-26 Capital Budget; authorize the addition of the Great Park Framework Plan Recycled Water Capital Facilities, Project 13464, in the amount of \$1,605,000 to the FY 2025-26 Capital Budget; authorize the addition of the Great Park Framework Plan Sanitary Sewer Capital Facilities, Project 13465, in the amount of \$867,000 to the FY 2025-26 Capital Budget; and authorize the General Manager to execute a Reimbursement Agreement with the City of Irvine for IRWD facilities related to the Gateway Residential Village Development.

LIST OF EXHIBITS:

- Exhibit "A" – Location Map – Great Park Framework Plan Northern Sector
- Exhibit "B" – Reimbursement Agreement with the City of Irvine for IRWD Facilities Related to the Great Park Northern Sector and Cultural Terrace Development
- Exhibit "C" – Bid Summary, Irvine Great Park Framework Plan, Domestic Water, Sanitary Sewer and Recycled Water Capital Improvements
- Exhibit "D" – Location Map – Irvine Gateway Residential Village Development
- Exhibit "E" – Reimbursement Agreement with the City of Irvine for IRWD Facilities Related to the Gateway Residential Village Development

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REIMBURSEMENT AGREEMENT BETWEEN
IRVINE RANCH WATER DISTRICT
AND THE CITY OF IRVINE
FOR
IRWD FACILITIES RELATED TO THE
GREAT PARK NORTHERN SECTOR AND CULTURAL TERRACE DEVELOPMENT

This Reimbursement Agreement (“Agreement”) is dated _____, 2026 (“Effective Date”) and is between IRVINE RANCH WATER DISTRICT (“IRWD”), a California water district formed and existing pursuant to the California Water District Law of the State of California, and THE CITY OF IRVINE, a California municipal corporation and charter city (“City”)(each a “Party” and collectively the “Parties”),

A. The City intends to construct street and utility improvements for the Great Park Northern Sector and Cultural Terrace Development (the “Project”), within the jurisdictional boundaries of the City.

B. IRWD seeks to have the City design and construct, within or adjacent to street improvements for the Project, the following facilities generally depicted on Exhibit “A” (the infrastructure collectively referred to as “IRWD Facilities” and all design and construction work for such facilities referred to as the “Work”);

- Approximately 5,417 lineal feet (LF) of 12-inch domestic water pipeline
- Approximately 746 LF of 12-inch sewer pipeline
- Approximately 6,881 LF of 15-inch sewer pipeline
- Approximately 283 LF of 6-inch recycled water pipeline and
- Approximately 18,480 LF of 8-inch recycled water pipeline

C. The Parties have determined that it will be more economical and expedient for the City to perform the Work at the City's cost, which shall be reimbursed by IRWD.

D. Upon the completion of the Work, the Parties intend that the IRWD Facilities installed as part of the Work will become the property of IRWD in accordance with the terms of this Agreement.

The Parties therefore agree as follows:

1. IRWD FACILITIES. As part of the Project, City shall initiate and pursue to completion the Work and perform the Work in accordance with this Agreement.

2. PLANS. The City shall complete the construction portion of the Work pursuant to project plans and specifications (“Plans and Specifications”) prepared by City's design engineer. The City shall prepare the Plans and Specifications in conformance with the applicable portions of IRWD’s latest editions of the *Construction Manual for the Construction of Water, Sewer, and Reclaimed Water Facilities* (the “Construction Manual”), the *Procedural Guidelines and General Design Requirements* (the “Procedural Guidelines”), and submit the Plans and Specifications to IRWD no later than 30 days

prior to advertising for bids for the construction of the Project. The City shall not advertise the Project for bids until IRWD has reviewed and provided the City with its written approval of the Plans and Specifications and any bidding documents pertaining to the IRWD Facilities. IRWD shall, within the period described in the previous sentence, review the Plans and Specifications and bidding documents and indicate approval or request changes. The Parties shall cooperate in good faith to address such requests. IRWD shall inspect the construction of the IRWD Facilities as provided in Section 7, below. The costs associated with the design of the Plans and Specifications shall be calculated on a time-and-material basis for services and are currently estimated at \$760,000, representing approximately 10% of the total estimated construction costs listed in Section 3, below. The design cost estimate is subject to adjustment for actual costs incurred by the City for the design services, including design services required in connection with any approved design revisions and change orders approved as specified in Section 4, below.

3. BIDDING AND AWARD.

3.1 The construction of the Work shall be included in the City's contract(s) awarded for the construction of the Project. The IRWD Facilities must be bid as a separate item or items that can be deleted from the Project. During the bidding process, the City shall deliver to IRWD one complete set of the bid documents that include the IRWD Facilities, and deliver all related addenda concurrently with the distribution of the documents to prospective bidders. After the City's opening of the bids for the Project, the City shall submit the bids or a spread sheet summary of the bids to IRWD.

3.2 IRWD shall have no less than ten days from its receipt of the bid results to review and either approve or reject the bid submitted by the bidder identified to IRWD by City as the City's proposed successful bidder. Bids received for the construction of any IRWD Facilities shall be subject to the approval of IRWD prior to award of any Project construction contract that includes the IRWD Facilities.

3.3 If IRWD does not approve any of the bids by the successful bidder for the IRWD Facilities, then either Party may terminate this Agreement upon 24 hours' prior written notice. Upon such termination, the City will have no further obligation to perform the Work, and IRWD may elect to install the IRWD Facilities with its own contractor. If IRWD does so elect, the City shall provide reasonable construction windows and site access for IRWD's contractors.

3.4 If IRWD approves the IRWD Facilities bid items of the successful bidder, then City shall cause the IRWD Facilities to be constructed as part of the contract awarded to that bidder, except that the Parties acknowledge that City retains the right to reject all bids and not award a contract for the Project or the IRWD Facilities.

3.5 The total cost for the construction of the IRWD Facilities is estimated to be \$7,594,750, but the actual amount that IRWD will reimburse the City shall be based upon the actual costs of construction.

3.6 Upon its award of the construction contract, the City shall provide IRWD with one original copy of the fully-executed contract documents and one copy of the bid package relating to the IRWD Facilities received from the successful bidder.

4. DESIGN REVISIONS AND CHANGE ORDERS.

4.1 IRWD shall reimburse the City for any change orders for revisions requested by IRWD required for the Work and for any change orders for revisions required for the Work resulting from

the existence of a condition which could not reasonably have been foreseen at the time the proposals were received. The City shall furnish IRWD with copies of any proposed change orders to the contract no later than five business days after the initiation of the changed conditions to the contract, which will be subject to IRWD's approval, if, and to the extent that, IRWD Facilities are affected.

4.2 IRWD shall promptly review proposed change orders and provide the City with a response no later than five business days after receiving any proposed change order information from City. IRWD will not unreasonably cause delay to the construction schedule of the Project in reviewing proposed change orders for the Work.

4.3 Notwithstanding any other provision of this Agreement, any IRWD approval under this Section 4 will be deemed given if the City does not receive a response from IRWD within eight business days after the City furnishes copies of the proposed change order pursuant to Section 4.1, unless the Parties otherwise agree in a writing executed by both Parties.

5. REIMBURSEMENT.

5.1 IRWD shall reimburse the City for the following costs for the Work and the IRWD Facilities, (collectively, the "Costs"): (1) the actual costs of design, materials, and construction incurred by City in connection with the Work; (2) any costs associated with IRWD approved change orders for revisions that are reimbursable in accordance with Section 4; (3) a share of mobilization and demobilization costs corresponding to the Work bid schedule costs in proportion to the overall Project bid schedule costs; and (4) an administration fee which will be equal to four percent (4%) of the actual cost of construction (costs paid directly to City's contractor for construction only, excluding any cost for design, surveying, geotechnical or other work) of the Work. This amount will be deemed to cover all costs of project administration including, but not limited to, accounting, inspection, surveying, compaction testing, geotechnical services, geotechnical engineering, permits, bonds, legal fees, construction administration, submittal reviews, rights of way, insurance, and all other items not specifically included in the bid schedules for the Work. City shall keep a separate accounting of all Costs incurred by City in relation to the Work.

5.2 No later than 30 days after IRWD's receipt of a contractor invoice for IRWD's portion of a construction progress payment on a certified form provided by the contractor to the City, accompanied by such supporting documentation as may be necessary to show the amounts which represent Costs of the IRWD Facilities, IRWD shall pay the progress payment to the City. As partial security for the fulfillment of the contractor's obligations to complete the Work, the City will retain from progress payments made to the contractor 10% of such estimated value from each progress payment requested.

5.3 No later than 60 days after IRWD's acceptance of the IRWD Facilities as provided in Section 8, the City shall make a final accounting of the Costs and submit that accounting to IRWD along with an invoice for the Costs and any supporting documentation necessary to show the amounts which represent Costs. Amounts paid pursuant to progress payment invoices will be subject to adjustment in the final accounting. IRWD shall pay to City the total amount of the Costs no later than 30 days after IRWD's receipt of the final accounting.

6. LAWS, ORDINANCES, RULES AND REGULATIONS. The City shall require in its contract for the Work that its contractor be fully informed of and comply with all laws, ordinances, rules and regulations, including, but not limited to, all applicable requirements of the California Labor Code, prevailing wage laws, and the Construction Manual, Rules and Regulations, and Procedural Guidelines in performing the Work.

7. DESIGN AND INSPECTION. IRWD will have sole and absolute discretion as to all aspects of the design and inspection of the Work, and IRWD will be entitled to inspect the Work as it deems necessary to assure compliance with the Plans and Specifications, including shop drawing review and material inspection. IRWD will have access to all phases of the Project for the purpose of those inspections; provided, however, all questions regarding the Work or Project will be directed to City's resident engineer or its designee. IRWD will promptly notify City of any portion of the Work which appears not to conform to the Plans and Specifications. IRWD's determination as to conformity of the Work with the Plans and Specifications will be made in IRWD's sole and absolute discretion. IRWD will not unreasonably withhold its approval as to conformity of the Work with the Plans and Specifications. The City shall require its contractor to perform the Work so that the IRWD Facilities conform to the Plans and Specifications. The City shall assume full responsibility for certifying or obtaining certification of the compaction of backfill material over the IRWD Facilities within the Trench Zone as well as within the Pipe Bedding Zone (both of which shall be identified in the Plans and Specifications) to meet the requirements of the latest versions of the Construction Manual and Procedural Guidelines.

8. ACCEPTANCE. IRWD shall accept the IRWD Facilities when the Work has been completed by the City in accordance with all requirements of the approved Plans and Specifications, including any change orders approved by Manual and Procedural Guidelines. At the time of completion and acceptance IRWD as provided in Section 4, and in conformance with the requirements of the latest versions of the Construction of the IRWD Facilities, the City shall furnish IRWD with one copy of the contractor's redlined set of "record" drawings (showing all revisions, manufacturers and types of valves, pipe and fittings as required by IRWD) and one copy of the compaction reports and certificate, survey notes and cut sheets.

9. OWNERSHIP. Notwithstanding the fact that City shall accomplish the Work subject to reimbursement, the IRWD Facilities, together with the necessary franchises, licenses, easements, rights-of-way, and other privileges, will at all times be subject to the applicable rates, rules and regulations of IRWD, as modified or amended from time to time. The City hereby disclaims any interest in the IRWD Facilities and hereby transfers and assigns to IRWD any and all right, title, and interest it may have in the IRWD Facilities upon their completion after acceptance in writing by IRWD. IRWD shall own, operate and maintain the IRWD Facilities following their acceptance.

10. GUARANTEES. The City shall, pursuant to the requirements of the Plans and Specifications, cause any contractor for the Work to guarantee the IRWD Facilities against defects in workmanship and materials for a period of one year from the date of acceptance by City, which acceptance shall be given only after acceptance by IRWD as provided in Section 8. City shall cause the IRWD Facilities to be brought or restored to full compliance with the requirements of the Plans and Specifications, including any test requirements, for any portions of the IRWD Facilities that during the one-year period are found not to be in conformance with the provisions of the Plans and Specifications. This guarantee is in addition to any and all other warranties, express or implied, from the City's contractors or material manufacturers, with respect to the IRWD Facilities. The guarantee and obligations under this section will in no way be relieved by IRWD's inspection and/or acceptance of the IRWD Facilities. This section sets forth the entire guarantee and warranty of the City with respect to the IRWD Facilities. The express or implied warranties of other persons with respect to IRWD Facilities will in no way be limited by the guarantee and warranty of the City contained in this section. If requested by IRWD, the City shall assign to IRWD the contractor's guarantee and/or any other guarantees or warranties relating to the IRWD Facilities.

11. INDEMNIFICATION.

11.1 City shall indemnify, defend and hold IRWD, its officers, agents, employees, and engineers harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen during performance of the Work as a result of any act or omission of the City, or its agents, employees, engineers, or contractors, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any act, omission, or negligence of IRWD, its officers, agents, employees or engineers or by any act or omission for which IRWD, its officers, agents, employees or engineers are liable without fault.

11.2 IRWD shall indemnify, defend and hold City, its officers, agents, and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen either (i) a result of any act or omission of IRWD, or its agents, employees, engineers, or contractors, with respect to the IRWD Facilities or Work; or (ii) following IRWD acceptance of the IRWD Facilities, with respect to maintenance and operation of the IRWD Facilities, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any negligence of City, its officers, agents, employees or engineers, or by any act or omission for which City, its officers, agents, employees or engineers are liable without fault.

11.3 Except for the payment of money, neither Party will be liable for any delays or other non-performance resulting from circumstances or causes beyond its reasonable control, including without limitation, fire or other casualty, act of God, strike or labor dispute, war or other violence, acts of third parties, or any law, order, or requirement of any governmental agency or authority other than the Parties.

12. INSURANCE AND BONDING. City shall cause its contractors to provide performance and payment bonds for the construction of the Project including the Work and to obtain insurance coverage sufficiently broad to insure the matters set forth in this Agreement and to include IRWD, its officers, agents, employees and engineers, as additional insureds on all insurance policies that City requires its contractors to provide. As evidence of such insurance coverage, City shall, prior to commencement of performance of the Work, provide IRWD with certificates of insurance and insurance endorsements from City's contractor(s) in the same form provided to City under the contract for the Work.

13. TERMINATION.

13.1 IRWD may terminate this Agreement at any time, subject to the provisions of this section, by providing no less than five business days' prior written notice to City, except as noted in Section 3 with respect to unapproved bids. If, at the request or direction of a party other than City, the performance of the Work is not accomplished or completed, IRWD shall remain obligated for the actual amount of the Costs incurred by City to the date of termination and for any and all Costs necessary to put any work that has already commenced on the IRWD Facilities as of the date of termination into a form that will allow for the safe completion of the Project.

13.2 If the Project is canceled or modified so as to eliminate the necessity of the construction of the IRWD Facilities, City shall have the right to terminate this Agreement and thereby terminate its obligation to perform the Work, by providing no less than five business days' prior written notice to IRWD. In such case, IRWD will not be obligated for any design or any other Costs incurred by City. If IRWD elects to perform the Work, IRWD may, but will not be obligated to, acquire the design or other work from City by separate agreement.

14. NOTICE. Any notice or other written instrument required or permitted by this Agreement to be given to either Party shall be deemed received when personally served or 24 hours after

being deposited in the U.S. Mail, postage prepaid, registered or certified, return receipt requested and addressed as follows:

IRWD: Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000
Attn: General Manager

CITY: City of Irvine
1 Civic Center Plaza
Irvine, CA 92606
Attn: Director of Public Works/City Engineer/Assistant Executive
Director

15. SUCCESSORS AND ASSIGNS; INTEGRATION; AMENDMENT. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of City and IRWD. This Agreement constitutes the entire Agreement between City and IRWD and supersedes all prior understandings and agreements between the Parties with respect to the Work for the Project. This Agreement may be modified only in writing signed by both Parties.

16. LEGAL FEES. In the event of any declaratory or other legal or equitable action instituted between City and IRWD in connection with this Agreement, the prevailing Party shall be entitled to recover from the losing Party its reasonable costs and expenses, including court costs and reasonable attorneys' fees.

17. DEEMED APPROVED. Except as specifically provided otherwise under this Agreement, any approval required to be given by either Party pursuant to this Agreement shall be deemed given if no response to the Party's request for such approval is received by the requesting Party within ten calendar days following the written request for such approval.

18. SEVERABILITY. If any term, provision, covenant or condition of this Agreement is held to be invalid, void or other unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby, and each term provision, covenant or condition of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

19. APPLICABLE LAW. This Agreement shall be construed and enforced in accordance with the laws of the State of California.

20. WAIVER. The waiver of any provision of this Agreement by either Party shall not be deemed to be a waiver of any other provision or of any preceding or subsequent breach.

[SIGNATURES ON FOLLOWING PAGE]

The Parties are signing this Agreement to be effective as of the Effective Date.

IRVINE RANCH WATER DISTRICT

By _____
Paul Cook, General Manager

Dated _____

ATTEST:

By _____
Secretary/Assistant Secretary

Dated _____

APPROVED AS TO FORM:
Hanson Bridgett LLP

By _____
Claire Collins, General Counsel

Dated _____

CITY OF IRVINE

By _____
Larry Agran, Mayor

Dated _____

ATTEST:

By _____
Carl Petersen, City Clerk

Dated _____

APPROVED AS TO FORM:

By _____
Jeffrey T. Melching, City Attorney

Dated _____

EXHIBIT "A"
to
Reimbursement Agreement



Depiction of Project

EXHIBIT "A"
to
Reimbursement Agreement

Capital Domestic Water Facilities

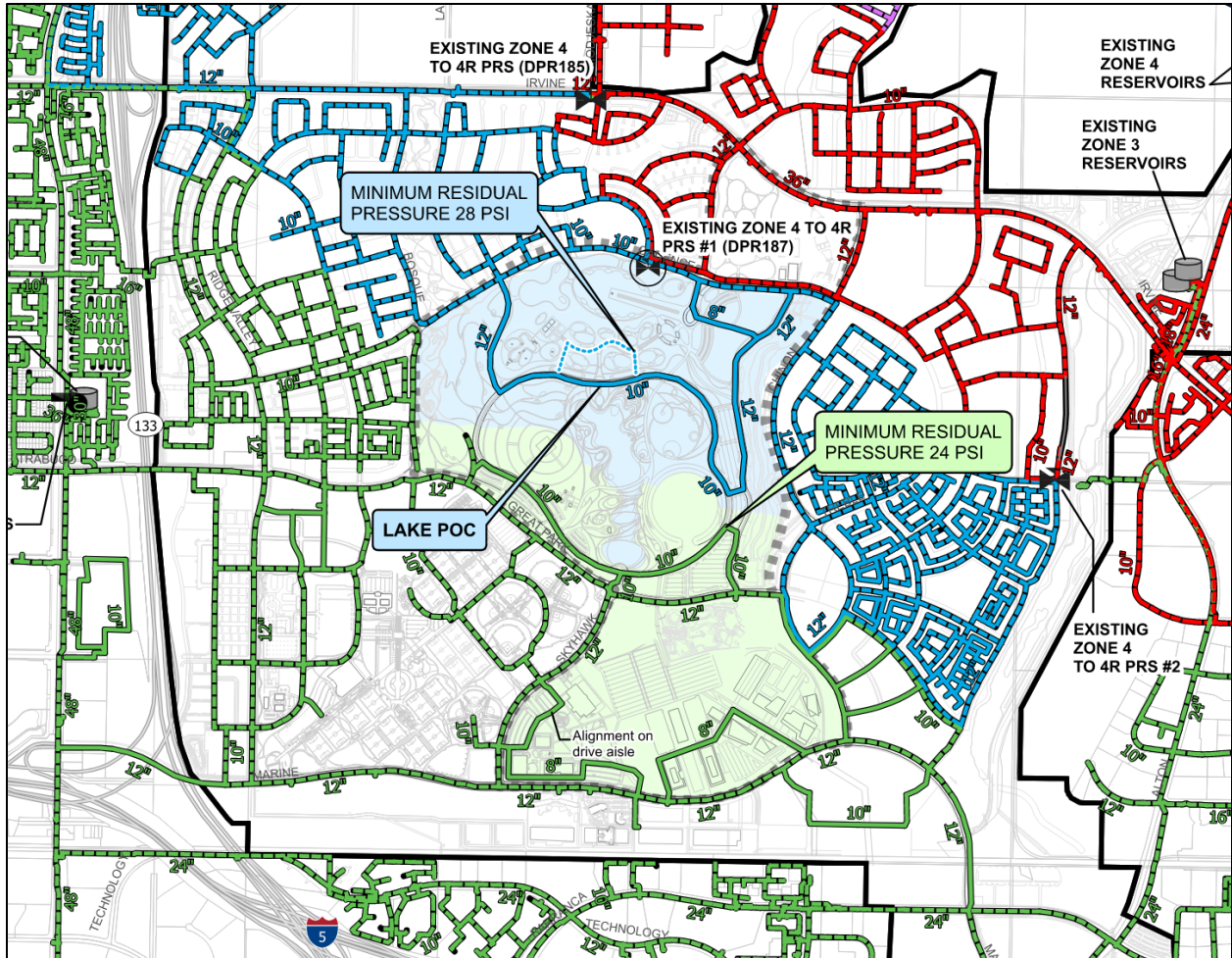


EXHIBIT "A"
to
Reimbursement Agreement

Table 9-5: Proposed Study Area Potable Water Facilities Cost Opinion

Proposed Facility	Proposed Quantity	Unit	Unit Cost	Total Cost	IRWD Portion	Developer Portion
ONSITE						
<u>Pipelines</u>						
8-inch Pipeline	8,741	LF	\$210	\$1,835,610	-	\$1,835,610
10-inch Pipeline	10,162	LF	\$240	\$2,438,880	-	\$2,438,880
12-inch Pipeline	5,417	LF	\$420	\$2,275,140	\$2,275,140	-
Pipeline Subtotal	24,320			\$6,549,630	\$2,275,140	\$4,274,490
Onsite Construction Cost Subtotal				\$6,549,630	\$2,275,140	\$4,274,490
Engineering & Administration			25%	\$1,637,408	\$568,785	\$1,068,623
Design & Construction Contingency			25%	\$2,046,759	\$710,981	\$1,335,778
TOTAL PROJECT COST				\$10,233,797	\$3,554,906	\$6,678,891

Estimated Domestic Water Cost Exhibit

EXHIBIT "A"
to
Reimbursement Agreement
Capital Sanitary Sewer Facilities

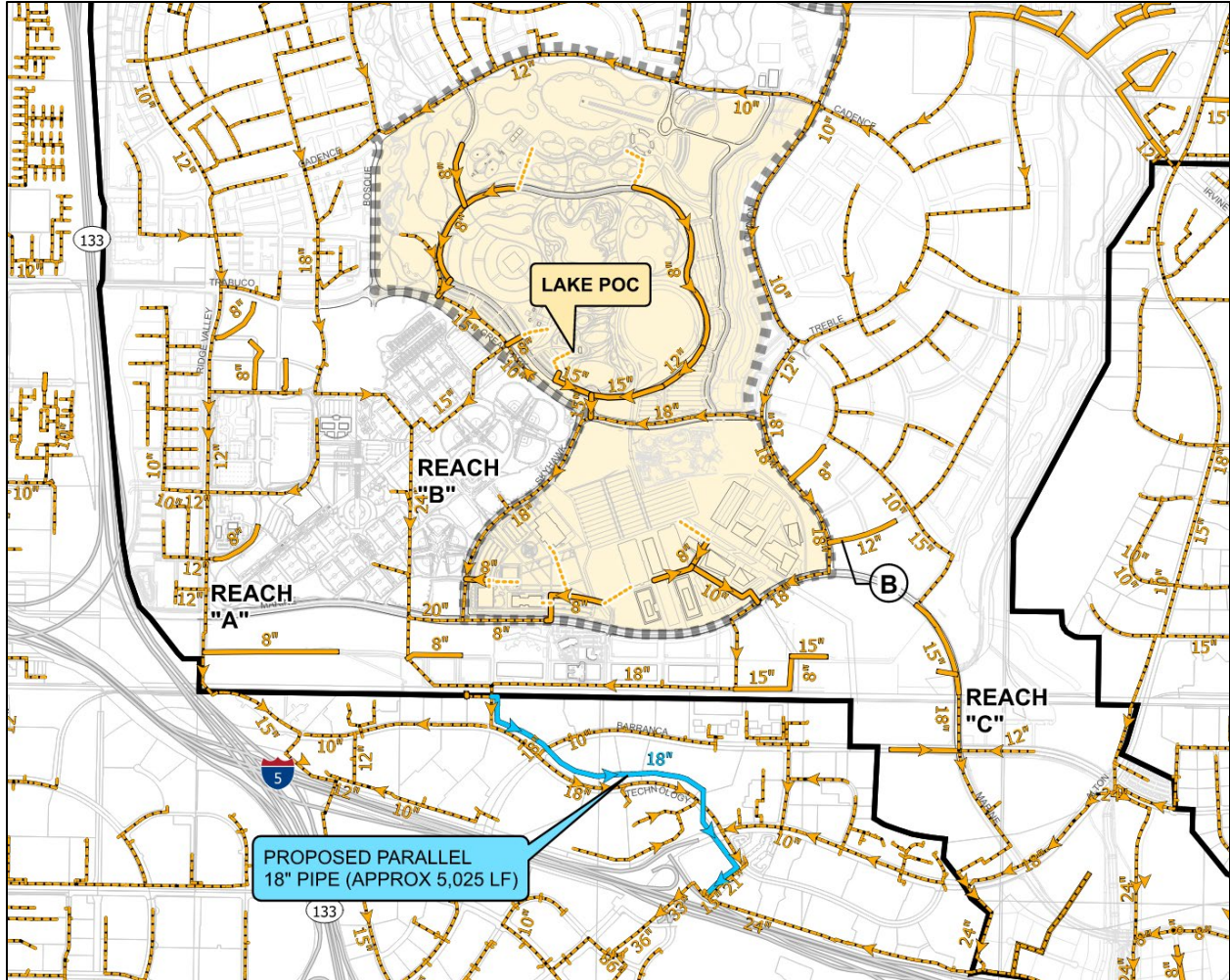


EXHIBIT "A"
to
Reimbursement Agreement

Table 9-6: Proposed Study Area Sanitary Sewer Facilities Cost Opinion

Proposed Facility	Proposed Quantity	Unit	Unit Cost	Total Cost	IRWD Portion	Developer Portion
ONSITE						
<u>Pipelines</u>						
8-inch Pipeline	6,746	LF	\$310	\$2,091,260	-	\$2,091,260
10-inch Pipeline	1,072	LF	\$350	\$375,200	-	\$375,200
12-inch Pipeline	746	LF	\$460	\$343,160	\$343,160	-
15-inch Pipeline	1,856	LF	\$560	\$1,039,360	\$1,039,360	-
Pipeline Subtotal	10,420			\$3,848,980	\$1,382,520	\$2,466,460
Onsite Construction Cost Subtotal				\$3,848,980	\$1,382,520	\$2,466,460
OFFSITE						
<u>Pipelines</u>						
15-inch Pipeline	5,025	LF	\$560	\$2,814,000	\$2,814,000	-
Pipeline Subtotal	5,025			\$2,814,000	\$2,814,000	-
Offsite Construction Cost Subtotal				\$2,814,000	\$2,814,000	-
Onsite and Offsite Construction Cost Subtotal				6,662,980	4,196,520	2,466,460
Engineering & Administration			2,554,028	\$1,665,745	\$1,049,130	\$616,615
Design & Construction Contingency			3,192,534	\$2,082,181	\$1,311,413	\$770,769
TOTAL PROJECT COST				\$10,410,906	\$6,557,063	\$3,853,844

Estimated Sanitary Sewer Cost Exhibit

EXHIBIT "A"
to
Reimbursement Agreement

Capital Recycled Water Facilities

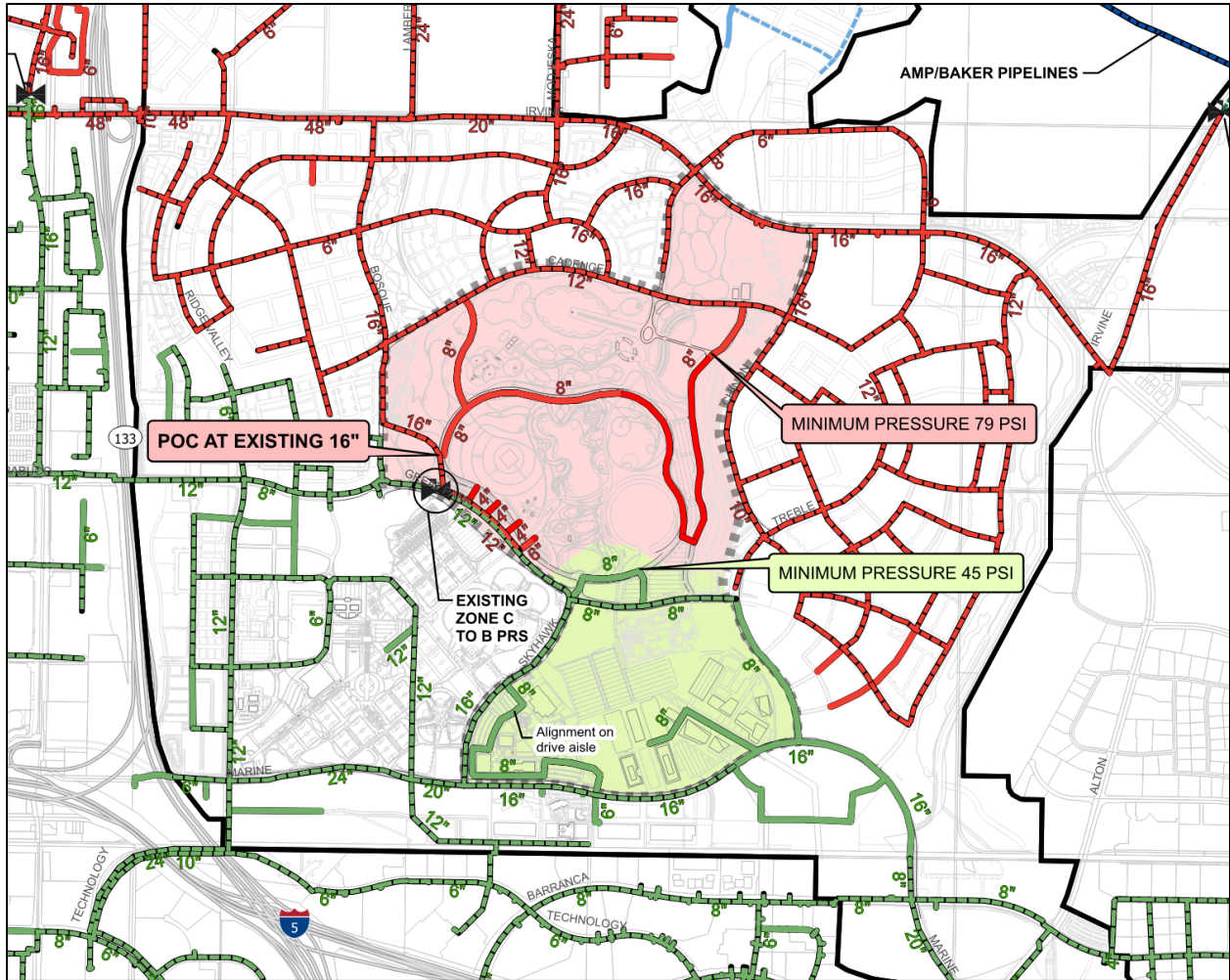


EXHIBIT "A"
to
Reimbursement Agreement

Table 9-7: Proposed Study Area Nonpotable Water Facilities Cost Opinion

Proposed Facility	Proposed Quantity	Unit	Unit Cost	Total Cost	IRWD Portion	Developer Portion
ONSITE						
<u>Pipelines</u>						
4-inch Pipeline	692	LF	\$130	\$89,960	-	\$89,960
6-inch Pipeline	283	LF	\$160	\$45,280	-	\$45,280
8-inch Pipeline	18,480	LF	\$200	\$3,696,000	\$3,696,000	-
Pipeline Subtotal	19,455			\$3,831,240	\$3,696,000	\$135,240
Onsite Construction Cost Subtotal				\$3,831,240	\$3,696,000	\$135,240
Engineering & Administration			25%	\$957,810	\$924,000	\$33,810
Design & Construction Contingency			25%	\$1,197,263	\$1,155,000	\$42,263
TOTAL PROJECT COST				\$5,986,313	\$5,775,000	\$211,313

Estimated Recycled Water Cost Exhibit

Exhibit "C"

City of Irvine
 Bid Results for Project Great Park Framework Plan Backbone Improvements
 CIP 372502 (GP-26-0002)
 Issued on 11/26/2025
 Bid Due on January 29, 2026 10:00 AM (PST)
 Exported on 01/29/2026
 IRWD Code 8301

ITEM	DESCRIPTION	ENGINEER'S ESTIMATE				SUKUT (LOW BID)				SULLY-MILLER				TORO				
		UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT	
IRWD CAPITAL - MOBILIZATION - PRO RATA SHARE																		
1	Develop Construction Water (Pro Rata Share)	LS	1	\$ 5,100.65	\$ 5,100.65	LS	1	\$ 6,800.86	\$ 6,800.86	LS	1	\$ 17,002.15	\$ 17,002.15	LS	1	\$ 9,351.18	\$ 9,351.18	
2	Stormwater Pollution Prevention Plan (SWPPP) (Pro Rata Share)	LS	1	\$ 18,277.31	\$ 18,277.31	LS	1	\$ 14,876.88	\$ 14,876.88	LS	1	\$ 12,751.61	\$ 12,751.61	LS	1	\$ 20,581.11	\$ 20,581.11	
3	Construction Schedule (Pro Rata Share)	LS	1	\$ 7,650.97	\$ 7,650.97	LS	1	\$ 374.05	\$ 374.05	LS	1	\$ 1,700.22	\$ 1,700.22	LS	1	\$ 1,020.13	\$ 1,020.13	
4	Traffic Control (Pro Rata Share)	LS	1	\$ 12,751.61	\$ 12,751.61	LS	1	\$ 4,930.62	\$ 4,930.62	LS	1	\$ 17,002.15	\$ 17,002.15	LS	1	\$ 45,905.81	\$ 45,905.81	
5	Mobilization (Pro Rata Share)	LS	1	\$ 17,002.15	\$ 17,002.15	LS	1	\$ 234,629.71	\$ 234,629.71	LS	1	\$ 271,864.43	\$ 271,864.43	LS	1	\$ 212,526.91	\$ 212,526.91	
				\$ 60,782.69					\$ 261,612.13					\$ 320,320.57				
Subtotal Mobilization (pro rata)																		
IRWD CAPITAL - DOMESTIC WATER																		
19	12" PVC, C900, DR14 Domestic Water Pipe	LF	3,188	\$ 182.26	\$ 581,044.88	LF	3,188	\$ 95.00	\$ 302,860.00	LF	3,188	\$ 110.00	\$ 350,680.00	LF	3,188	\$ 111.00	\$ 353,868.00	
20	Fire Hydrant, 6" Lateral	EA	7	\$ 4,981.74	\$ 34,872.18	EA	7	\$ 16,000.00	\$ 112,000.00	EA	7	\$ 15,000.00	\$ 105,000.00	EA	7	\$ 16,360.00	\$ 114,520.00	
21	2" Air Release and Vacuum Relief	EA	1	\$ 1,862.62	\$ 1,862.62	EA	1	\$ 11,000.00	\$ 11,000.00	EA	1	\$ 12,000.00	\$ 12,000.00	EA	1	\$ 24,665.00	\$ 24,665.00	
22	Temporary Flush-Out Assembly	EA	3	\$ 9,750.00	\$ 29,250.00	EA	3	\$ 4,100.00	\$ 12,300.00	EA	3	\$ 3,300.00	\$ 9,900.00	EA	3	\$ 9,300.00	\$ 27,900.00	
23	12" Butterfly Valve, CL 150, FL x FL	EA	10	\$ 13,818.16	\$ 138,181.60	EA	10	\$ 8,000.00	\$ 80,000.00	EA	10	\$ 7,500.00	\$ 75,000.00	EA	10	\$ 10,640.00	\$ 106,400.00	
24	12"x12"x12" D.I. Flanged Cut-In Tee	EA	1	\$ 5,663.24	\$ 5,663.24	EA	1	\$ 12,100.00	\$ 12,100.00	EA	1	\$ 11,000.00	\$ 11,000.00	EA	1	\$ 6,050.00	\$ 6,050.00	
25	12"x10" D.I. Reducer, FL x PO	EA	2	\$ 2,605.79	\$ 5,211.58	EA	2	\$ 2,000.00	\$ 4,000.00	EA	2	\$ 1,400.00	\$ 2,800.00	EA	2	\$ 2,345.00	\$ 4,690.00	
26	12"x8" D.I. Reducer FL x PO	EA	2	\$ 2,202.27	\$ 4,404.54	EA	2	\$ 2,100.00	\$ 4,200.00	EA	2	\$ 1,600.00	\$ 3,200.00	EA	2	\$ 1,965.00	\$ 3,930.00	
27	12"x12"x6" D.I. Tee, FL x FL x FL	EA	7	\$ 5,148.40	\$ 36,038.80	EA	7	\$ 3,400.00	\$ 23,800.00	EA	7	\$ 2,700.00	\$ 18,900.00	EA	7	\$ 2,345.00	\$ 16,415.00	
28	12" D.I. FL x PO Adapter	EA	17	\$ 2,681.17	\$ 45,579.89	EA	17	\$ 1,050.00	\$ 17,850.00	EA	17	\$ 850.00	\$ 14,450.00	EA	17	\$ 1,425.00	\$ 24,225.00	
29	12" 90 D.I. Bend, FL x FL	EA	2	\$ 3,154.31	\$ 6,308.62	EA	2	\$ 2,450.00	\$ 4,900.00	EA	2	\$ 3,000.00	\$ 6,000.00	EA	2	\$ 2,410.00	\$ 4,820.00	
30	12" 11.25 D.I. Bend, PO x PO	EA	10	\$ 4,735.33	\$ 47,353.30	EA	10	\$ 1,600.00	\$ 16,000.00	EA	10	\$ 1,500.00	\$ 15,000.00	EA	10	\$ 1,645.00	\$ 16,450.00	
				\$ 935,771.25					\$ 601,010.00					\$ 623,930.00				
Subtotal Domestic Water																		
IRWD CAPITAL - SEWER																		
31	15" PVC, SDR 35, Sewer Pipe	LF	1,744	\$ 286.05	\$ 498,871.20	LF	1,744	\$ 140.00	\$ 244,160.00	LF	1,744	\$ 325.00	\$ 566,800.00	LF	1,744	\$ 173.00	\$ 301,712.00	
32	12" PVC, SDR 35, Sewer Pipe	LF	785	\$ 179.21	\$ 140,679.85	LF	785	\$ 98.00	\$ 76,930.00	LF	785	\$ 188.00	\$ 147,580.00	LF	785	\$ 137.00	\$ 107,545.00	
33	Casing Test Station	EA	1	\$ 5,000.00	\$ 5,000.00	EA	1	\$ 3,950.00	\$ 3,950.00	EA	1	\$ 8,500.00	\$ 8,500.00	EA	1	\$ 8,840.00	\$ 8,840.00	
34	30" Steel Casing	LF	117	\$ 389.67	\$ 45,591.39	LF	117	\$ 560.00	\$ 65,520.00	LF	117	\$ 475.00	\$ 55,575.00	LF	117	\$ 545.00	\$ 63,765.00	
35	15"x8" PVC SDR 35 Reducer	EA	1	\$ 675.78	\$ 675.78	EA	1	\$ 515.00	\$ 515.00	EA	1	\$ 1,100.00	\$ 1,100.00	EA	1	\$ 850.00	\$ 850.00	
36	60" Dia. Manhole	EA	3	\$ 16,882.47	\$ 50,647.41	EA	3	\$ 14,000.00	\$ 42,000.00	EA	3	\$ 21,200.00	\$ 63,600.00	EA	3	\$ 37,165.00	\$ 111,495.00	
37	48" Dia. Manhole	EA	4	\$ 12,273.14	\$ 49,092.56	EA	4	\$ 10,000.00	\$ 40,000.00	EA	4	\$ 13,600.00	\$ 54,400.00	EA	4	\$ 33,000.00	\$ 132,000.00	
38	48" Dia. Manhole with Manhole Liner	EA	2	\$ 12,273.14	\$ 24,546.28	EA	2	\$ 16,500.00	\$ 33,000.00	EA	2	\$ 18,500.00	\$ 37,000.00	EA	2	\$ 35,000.00	\$ 70,000.00	
39	Core Drill, Rechannel and Connect to Existing Manhole	EA	1	\$ 4,550.00	\$ 4,550.00	EA	1	\$ 9,000.00	\$ 9,000.00	EA	1	\$ 12,000.00	\$ 12,000.00	EA	1	\$ 3,525.00	\$ 3,525.00	
40	Remove Sewer Pipe	LF	159	\$ 44.34	\$ 7,050.06	LF	159	\$ 75.00	\$ 11,925.00	LF	159	\$ 230.00	\$ 36,570.00	LF	159	\$ 16.00	\$ 2,544.00	
				\$ 826,704.53					\$ 527,000.00					\$ 983,125.00				
Subtotal Sewer																		
IRWD CAPITAL - RECYCLED WATER																		
41	8" PVC (Purple), C900, SDR14 Recycled Water Pipe	LF	10,413	\$ 115.83	\$ 1,206,137.79	LF	10,413	\$ 65.00	\$ 676,845.00	LF	10,413	\$ 77.00	\$ 801,801.00	LF	10,413	\$ 74.00	\$ 770,562.00	
42	2" Air Release and Vacuum Relief	EA	4	\$ 1,862.62	\$ 7,450.48	EA	4	\$ 9,500.00	\$ 38,000.00	EA	4	\$ 11,000.00	\$ 44,000.00	EA	4	\$ 12,830.00	\$ 51,320.00	
43	Temporary Flush-Out Assembly	EA	3	\$ 9,750.00	\$ 29,250.00	EA	3	\$ 3,800.00	\$ 11,400.00	EA	3	\$ 3,000.00	\$ 9,000.00	EA	3	\$ 4,040.00	\$ 12,120.00	
44	4" Blow Off/Bottom Drain Assembly	EA	3	\$ 4,089.51	\$ 12,268.53	EA	3	\$ 20,000.00	\$ 60,000.00	EA	3	\$ 22,000.00	\$ 66,000.00	EA	3	\$ 15,710.00	\$ 47,130.00	
45	12" Butterfly Valve, CL 150, FL x FL	EA	6	\$ 13,818.16	\$ 82,908.96	EA	6	\$ 8,000.00	\$ 48,000.00	EA	6	\$ 7,500.00	\$ 45,000.00	EA	6	\$ 9,940.00	\$ 59,640.00	
46	8" Resilient Wedge Gate Valve, CL 150, FL x FL	EA	19	\$ 7,298.83	\$ 138,677.77	EA	19	\$ 4,000.00	\$ 76,000.00	EA	19	\$ 4,000.00	\$ 76,000.00	EA	19	\$ 4,525.00	\$ 85,975.00	
47	12"x12"x8" D.I. Flanged Cut-In Tee	EA	3	\$ 4,758.89	\$ 14,276.67	EA	3	\$ 12,000.00	\$ 36,000.00	EA	3	\$ 10,000.00	\$ 30,000.00	EA	3	\$ 7,260.00	\$ 21,780.00	
48	8"x8"x8" D.I. Flanged Cut-In Tee	EA	1	\$ 2,972.06	\$ 2,972.06	EA	1	\$ 11,000.00	\$ 11,000.00	EA	1	\$ 10,000.00	\$ 10,000.00	EA	1	\$ 4,365.00	\$ 4,365.00	
49	12" D.I. FL x PO Adapter	EA	6	\$ 2,681.17	\$ 16,087.02	EA	6	\$ 1,050.00	\$ 6,300.00	EA	6	\$ 1,000.00	\$ 6,000.00	EA	6	\$ 1,210.00	\$ 7,260.00	
50	8"x8"x8"x8" D.I. Cross, FL x FL x FL x FL	EA	1	\$ 3,267.24	\$ 3,267.24	EA	1	\$ 2,800.00	\$ 2,800.00	EA	1	\$ 6,500.00	\$ 6,500.00	EA	1	\$ 2,075.00	\$ 2,075.00	
51	8"x8"x8" D.I. Tee, FL x FL x FL	EA	1	\$ 3,640.40	\$ 3,640.40	EA	1	\$ 2,500.00	\$ 2,500.00	EA	1	\$ 2,000.00	\$ 2,000.00	EA	1	\$ 1,810.00	\$ 1,810.00	
52	8" D.I. FL x PO Adapter	EA	21	\$ 1,289.61	\$ 27,081.81	EA	21	\$ 700.00	\$ 14,700.00	EA	21	\$ 600.00	\$ 12,600.00	EA	21	\$ 860.00	\$ 18,060.00	
53	8" 90 D.I. Bend, FL x PO	EA	2	\$ 1,517.18	\$ 3,034.36	EA	2	\$ 1,500.00	\$ 3,000.00	EA	2	\$ 1,600.00	\$ 3,200.00	EA	2	\$ 785.00	\$ 1,570.00	
54	8" 90 D.I. Bend, PO x PO	EA	2	\$ 1,517.18	\$ 3,034.36	EA	2	\$ 1,400.00	\$ 2,800.00	EA	2	\$ 1,500.00	\$ 3,000.00	EA	2	\$ 760.00	\$ 1,520.00	
55	8" 45 D.I. Bend, FL x PO	EA	6	\$ 1,517.18	\$ 9,103.08	EA	6	\$ 1,550.00	\$ 9,300.00	EA	6	\$ 1,500.00	\$ 9,000.00	EA	6	\$ 3,305.00	\$ 19,830.00	
56	8" 45 D.I. Bend, PO x PO	EA	8	\$ 1,517.18	\$ 12,137.44	EA	8	\$ 1,300.00	\$ 10,400.00	EA	8	\$ 1,200.00	\$ 9,600.00	EA	8	\$ 700.00	\$ 5,600.00	
57	8" 22.5 D.I. Bend, FL x PO	EA	1	\$ 1,593.04	\$ 1,593.04	EA	1	\$ 1,450.00	\$ 1,450.00	EA	1	\$ 1,300.00	\$ 1,300.00	EA	1	\$ 835.00	\$ 835.00	
58	8" 22.5 D.I. Bend, PO x PO	EA	3	\$ 1,593.04	\$ 4,779.12	EA	3	\$ 1,250.00	\$ 3,750.00	EA	3	\$ 1,200.00	\$ 3,600.00	EA	3	\$ 700.00	\$ 2,100.00	
59	8" 11.25 D.I. Bend, FL x PO	EA	1	\$ 1,593.04	\$ 1,593.04	EA	1	\$ 1,450.00	\$ 1,450.00	EA	1	\$ 1,300.00	\$ 1,300.00	EA	1	\$ 765.00	\$ 765.00	
60	8" 11.25 D.I. Bend, PO x PO	EA	2	\$ 1,593.04	\$ 3,186.08	EA	2	\$ 1,250.00	\$ 2,500.00	EA	2	\$ 1,100.00	\$ 2,200.00	EA	2	\$ 630.00	\$ 1,260.00	
				\$ 1,582,479.25					\$ 1,018,195.00					\$ 1,142,101.00				
Subtotal Recycled Water																		
TOTAL IRWD CAPITAL																		
				\$ 3,405,737.72					\$ 2,407,817.13					\$ 3,069,476.57				

City of Irvine
 Bid Results for Project Great Park Framework Plan Backbone Improvements
 CIP 372502 (GP-26-0002)
 Issued on 11/26/2025
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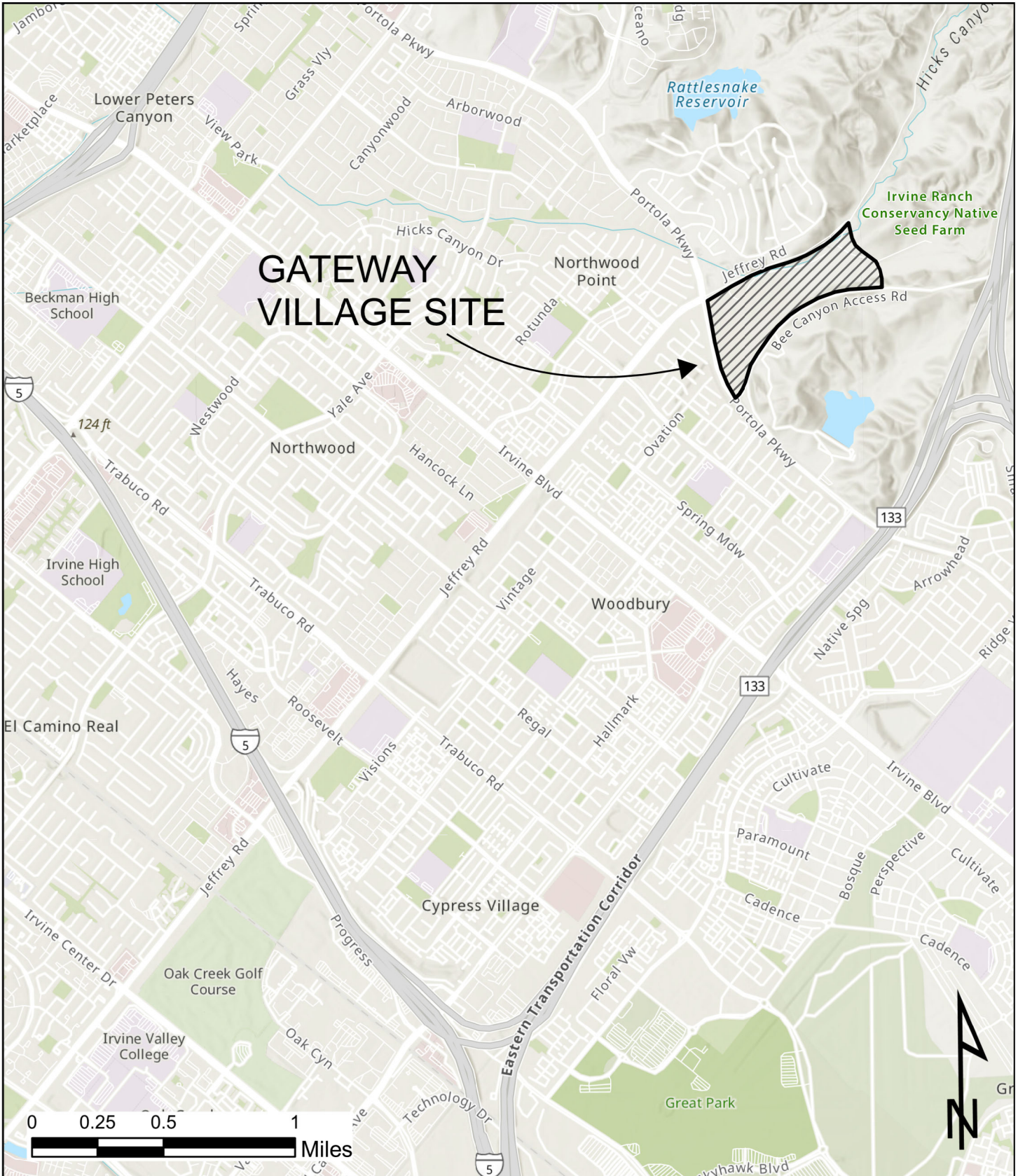
ITEM	DESCRIPTION	GRIFFITH				ADKINSON				BIG BEN				FLATIRON			
		UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT
IRWD CAPITAL - MOBILIZATION - PRO RATA SHARE																	
1	Develop Construction Water (Pro Rata Share)	LS	1	\$ 12,751.61	\$ 12,751.61	LS	1	\$ 12,751.61	\$ 12,751.61	LS	1	\$ 2,789.80	\$ 2,789.80	LS	1	\$ 12,751.61	\$ 12,751.61
2	Stormwater Pollution Prevention Plan (SWPPP) (Pro Rata Share)	LS	1	\$ 35,310.39	\$ 35,310.39	LS	1	\$ 76,509.69	\$ 76,509.69	LS	1	\$ 4,753.38	\$ 4,753.38	LS	1	\$ 38,254.84	\$ 38,254.84
3	Construction Schedule (Pro Rata Share)	LS	1	\$ 6,375.81	\$ 6,375.81	LS	1	\$ 1,700.22	\$ 1,700.22	LS	1	\$ 5,579.51	\$ 5,579.51	LS	1	\$ 850.11	\$ 850.11
4	Traffic Control (Pro Rata Share)	LS	1	\$ 20,825.94	\$ 20,825.94	LS	1	\$ 42,505.38	\$ 42,505.38	LS	1	\$ 1,634.42	\$ 1,634.42	LS	1	\$ 14,876.88	\$ 14,876.88
5	Mobilization (Pro Rata Share)	LS	1	\$ 297,537.68	\$ 297,537.68	LS	1	\$ 331,543.60	\$ 331,543.60	LS	1	\$ 149,168.39	\$ 149,168.39	LS	1	\$ 372,519.69	\$ 372,519.69
	<i>Subtotal Mobilization (pro rata)</i>			\$	\$ 372,801.43			\$	\$ 465,010.50			\$	\$ 163,925.49			\$	\$ 439,253.14
IRWD CAPITAL - DOMESTIC WATER																	
19	12" PVC, C900, DR14 Domestic Water Pipe	LF	3,188	\$ 125.00	\$ 398,500.00	LF	3,188	\$ 120.00	\$ 382,560.00	LF	3,188	\$ 123.00	\$ 392,124.00	LF	3,188	\$ 154.00	\$ 490,952.00
20	Fire Hydrant, 6" Lateral	EA	7	\$ 13,000.00	\$ 91,000.00	EA	7	\$ 15,000.00	\$ 105,000.00	EA	7	\$ 19,391.00	\$ 135,737.00	EA	7	\$ 21,600.00	\$ 151,200.00
21	2" Air Release and Vacuum Relief	EA	1	\$ 11,290.00	\$ 11,290.00	EA	1	\$ 15,000.00	\$ 15,000.00	EA	1	\$ 21,463.00	\$ 21,463.00	EA	1	\$ 15,900.00	\$ 15,900.00
22	Temporary Flush-Out Assembly	EA	3	\$ 2,620.00	\$ 7,860.00	EA	3	\$ 5,000.00	\$ 15,000.00	EA	3	\$ 11,489.00	\$ 34,467.00	EA	3	\$ 5,135.00	\$ 15,405.00
23	12" Butterfly Valve, CL 150, FL x FL	EA	10	\$ 6,305.00	\$ 63,050.00	EA	10	\$ 8,500.00	\$ 85,000.00	EA	10	\$ 15,533.00	\$ 155,330.00	EA	10	\$ 12,000.00	\$ 120,000.00
24	12"x12"x12" D.I. Flanged Cut-In Tee	EA	1	\$ 21,870.00	\$ 21,870.00	EA	1	\$ 25,000.00	\$ 25,000.00	EA	1	\$ 4,694.00	\$ 4,694.00	EA	1	\$ 3,207.00	\$ 3,207.00
25	12"x10" D.I. Reducer, FL x PO	EA	2	\$ 1,225.00	\$ 2,450.00	EA	2	\$ 1,500.00	\$ 3,000.00	EA	2	\$ 3,798.00	\$ 7,596.00	EA	2	\$ 3,497.00	\$ 6,994.00
26	12"x8" D.I. Reducer, FL x PO	EA	2	\$ 802.00	\$ 1,604.00	EA	2	\$ 1,000.00	\$ 2,000.00	EA	2	\$ 3,341.00	\$ 6,682.00	EA	2	\$ 3,062.00	\$ 6,124.00
27	12"x12"x6" D.I. Tee, FL x FL x FL	EA	7	\$ 1,385.00	\$ 9,695.00	EA	7	\$ 1,500.00	\$ 10,500.00	EA	7	\$ 4,268.00	\$ 29,876.00	EA	7	\$ 2,802.00	\$ 19,614.00
28	12" D.I. FL x PO Adapter	EA	17	\$ 974.00	\$ 16,558.00	EA	17	\$ 1,100.00	\$ 18,700.00	EA	17	\$ 2,688.00	\$ 45,696.00	EA	17	\$ 2,442.00	\$ 41,514.00
29	12" 90 D.I. Bend, FL x FL	EA	2	\$ 1,410.00	\$ 2,820.00	EA	2	\$ 1,500.00	\$ 3,000.00	EA	2	\$ 3,141.00	\$ 6,282.00	EA	2	\$ 3,607.00	\$ 7,214.00
30	12" 11.25 D.I. Bend, PO x PO	EA	10	\$ 912.00	\$ 9,120.00	EA	10	\$ 1,100.00	\$ 11,000.00	EA	10	\$ 2,220.00	\$ 22,200.00	EA	10	\$ 3,607.00	\$ 36,070.00
	<i>Subtotal Domestic Water</i>			\$	\$ 635,817.00			\$	\$ 675,760.00			\$	\$ 862,147.00			\$	\$ 914,194.00
IRWD CAPITAL - SEWER																	
31	15" PVC, SDR 35, Sewer Pipe	LF	1,744	\$ 185.00	\$ 322,640.00	LF	1,744	\$ 190.00	\$ 331,360.00	LF	1,744	\$ 200.00	\$ 348,800.00	LF	1,744	\$ 250.00	\$ 436,000.00
32	12" PVC, SDR 35, Sewer Pipe	LF	785	\$ 132.00	\$ 103,620.00	LF	785	\$ 139.00	\$ 109,115.00	LF	785	\$ 131.00	\$ 102,835.00	LF	785	\$ 200.00	\$ 157,000.00
33	Casing Test Station	EA	1	\$ 4,620.00	\$ 4,620.00	EA	1	\$ 5,000.00	\$ 5,000.00	EA	1	\$ 3,001.00	\$ 3,001.00	EA	1	\$ 7,500.00	\$ 7,500.00
34	30" Steel Casing	LF	117	\$ 606.00	\$ 70,902.00	LF	117	\$ 550.00	\$ 64,350.00	LF	117	\$ 785.00	\$ 91,845.00	LF	117	\$ 524.00	\$ 61,308.00
35	15"x8" PVC SDR 35 Reducer	EA	1	\$ 890.00	\$ 890.00	EA	1	\$ 1,000.00	\$ 1,000.00	EA	1	\$ 1,937.00	\$ 1,937.00	EA	1	\$ 2,000.00	\$ 2,000.00
36	60" Dia. Manhole	EA	3	\$ 12,190.00	\$ 36,570.00	EA	3	\$ 13,000.00	\$ 39,000.00	EA	3	\$ 19,960.00	\$ 59,880.00	EA	3	\$ 50,000.00	\$ 150,000.00
37	48" Dia. Manhole	EA	4	\$ 8,455.00	\$ 33,820.00	EA	4	\$ 10,000.00	\$ 40,000.00	EA	4	\$ 15,384.00	\$ 61,536.00	EA	4	\$ 43,300.00	\$ 173,200.00
38	48" Dia. Manhole with Manhole Liner	EA	2	\$ 15,090.00	\$ 30,180.00	EA	2	\$ 15,000.00	\$ 30,000.00	EA	2	\$ 21,546.00	\$ 43,092.00	EA	2	\$ 56,900.00	\$ 113,800.00
39	Core Drill, Rechannel and Connect to Existing Manhole	EA	1	\$ 6,725.00	\$ 6,725.00	EA	1	\$ 10,000.00	\$ 10,000.00	EA	1	\$ 9,941.00	\$ 9,941.00	EA	1	\$ 8,554.00	\$ 8,554.00
40	Remove Sewer Pipe	LF	159	\$ 194.00	\$ 30,846.00	LF	159	\$ 200.00	\$ 31,800.00	LF	159	\$ 122.00	\$ 19,398.00	LF	159	\$ 125.00	\$ 19,875.00
	<i>Subtotal Sewer</i>			\$	\$ 640,813.00			\$	\$ 661,625.00			\$	\$ 742,265.00			\$	\$ 1,129,237.00
IRWD CAPITAL - RECYCLED WATER																	
41	8" PVC (Purple), C900, SDR14 Recycled Water Pipe	LF	10,413	\$ 90.00	\$ 937,170.00	LF	10,413	\$ 95.00	\$ 989,235.00	LF	10,413	\$ 94.00	\$ 978,822.00	LF	10,413	\$ 185.00	\$ 1,926,405.00
42	2" Air Release and Vacuum Relief	EA	4	\$ 9,945.00	\$ 39,780.00	EA	4	\$ 13,000.00	\$ 52,000.00	EA	4	\$ 20,195.00	\$ 80,780.00	EA	4	\$ 12,500.00	\$ 50,000.00
43	Temporary Flush-Out Assembly	EA	3	\$ 2,695.00	\$ 8,085.00	EA	3	\$ 4,000.00	\$ 12,000.00	EA	3	\$ 13,609.00	\$ 40,827.00	EA	3	\$ 5,000.00	\$ 15,000.00
44	4" Blow Off/Bottom Drain Assembly	EA	3	\$ 11,650.00	\$ 34,950.00	EA	3	\$ 12,000.00	\$ 36,000.00	EA	3	\$ 23,439.00	\$ 70,317.00	EA	3	\$ 35,000.00	\$ 105,000.00
45	12" Butterfly Valve, CL 150, FL x FL	EA	6	\$ 6,000.00	\$ 36,000.00	EA	6	\$ 7,500.00	\$ 45,000.00	EA	6	\$ 12,704.00	\$ 76,224.00	EA	6	\$ 12,400.00	\$ 74,400.00
46	8" Resilient Wedge Gate Valve, CL 150, FL x FL	EA	19	\$ 4,300.00	\$ 81,700.00	EA	19	\$ 6,000.00	\$ 114,000.00	EA	19	\$ 5,770.00	\$ 109,630.00	EA	19	\$ 6,200.00	\$ 117,800.00
47	12"x12"x8" D.I. Flanged Cut-In Tee	EA	3	\$ 20,260.00	\$ 60,780.00	EA	3	\$ 21,000.00	\$ 63,000.00	EA	3	\$ 11,563.00	\$ 34,689.00	EA	3	\$ 3,000.00	\$ 9,000.00
48	8"x8"x8" D.I. Flanged Cut-In Tee	EA	1	\$ 19,120.00	\$ 19,120.00	EA	1	\$ 20,000.00	\$ 20,000.00	EA	1	\$ 10,795.00	\$ 10,795.00	EA	1	\$ 2,250.00	\$ 2,250.00
49	12" D.I. FL x PO Adapter	EA	6	\$ 1,075.00	\$ 6,450.00	EA	6	\$ 1,150.00	\$ 6,900.00	EA	6	\$ 2,688.00	\$ 16,128.00	EA	6	\$ 2,600.00	\$ 15,600.00
50	8"x8"x8"x8" D.I. Cross, FL x FL x FL x FL	EA	1	\$ 1,710.00	\$ 1,710.00	EA	1	\$ 2,000.00	\$ 2,000.00	EA	1	\$ 3,793.00	\$ 3,793.00	EA	1	\$ 3,000.00	\$ 3,000.00
51	8"x8"x8" D.I. Tee, FL x FL x FL	EA	1	\$ 1,245.00	\$ 1,245.00	EA	1	\$ 1,500.00	\$ 1,500.00	EA	1	\$ 3,586.00	\$ 3,586.00	EA	1	\$ 3,000.00	\$ 3,000.00
52	8" D.I. FL x PO Adapter	EA	21	\$ 631.00	\$ 13,251.00	EA	21	\$ 700.00	\$ 14,700.00	EA	21	\$ 2,003.00	\$ 42,063.00	EA	21	\$ 2,250.00	\$ 47,250.00
53	8" 90 D.I. Bend, FL x PO	EA	2	\$ 797.00	\$ 1,594.00	EA	2	\$ 750.00	\$ 1,500.00	EA	2	\$ 2,029.00	\$ 4,058.00	EA	2	\$ 2,000.00	\$ 4,000.00
54	8" 90 D.I. Bend, PO x PO	EA	2	\$ 767.00	\$ 1,534.00	EA	2	\$ 730.00	\$ 1,460.00	EA	2	\$ 2,001.00	\$ 4,002.00	EA	2	\$ 2,000.00	\$ 4,000.00
55	8" 45 D.I. Bend, FL x PO	EA	6	\$ 838.00	\$ 5,028.00	EA	6	\$ 800.00	\$ 4,800.00	EA	6	\$ 2,090.00	\$ 12,540.00	EA	6	\$ 2,000.00	\$ 12,000.00
56	8" 45 D.I. Bend, PO x PO	EA	8	\$ 932.00	\$ 7,456.00	EA	8	\$ 870.00	\$ 6,960.00	EA	8	\$ 1,915.00	\$ 15,320.00	EA	8	\$ 1,800.00	\$ 14,400.00
57	8" 22.5 D.I. Bend, FL x PO	EA	1	\$ 730.00	\$ 730.00	EA	1	\$ 690.00	\$ 690.00	EA	1	\$ 2,057.00	\$ 2,057.00	EA	1	\$ 2,000.00	\$ 2,000.00
58	8" 22.5 D.I. Bend, PO x PO	EA	3	\$ 582.00	\$ 1,746.00	EA	3	\$ 570.00	\$ 1,710.00	EA	3	\$ 1,588.00	\$ 4,764.00	EA	3	\$ 1,500.00	\$ 4,500.00
59	8" 11.25 D.I. Bend, FL x PO	EA	1	\$ 718.00	\$ 718.00	EA	1	\$ 700.00	\$ 700.00	EA	1	\$ 2,102.00	\$ 2,102.00	EA	1	\$ 2,000.00	\$ 2,000.00
60	8" 11.25 D.I. Bend, PO x PO	EA	2	\$ 592.00	\$ 1,184.00	EA	2	\$ 580.00	\$ 1,160.00	EA	2	\$ 2,162.00	\$ 4,324.00	EA	2	\$ 1,800.00	\$ 3,600.00
	<i>Subtotal Recycled Water</i>			\$	\$ 1,260,231.00			\$	\$ 1,375,315.00			\$	\$ 1,516,821.00			\$	\$ 2,415,205.00
TOTAL IRWD CAPITAL				\$	\$ 2,909,662.43	\$	\$ 3,177,710.50	\$	\$ 3,285,158.49	\$	\$ 4,897,889.14						

City of Irvine
 Bid Results for Project Great Park Framework Plan Backbone Improvements
 CIP 372502 (GP-26-0002)
 Issued on 11/26/2025
 Bid Due on January 29, 2026 10:00 AM (PST)
 Exported on 01/29/2026
 IRWD Code 8301

ITEM	DESCRIPTION	FERREIRA				RIVERSIDE			
		UNIT	QTY	UNIT PRICE	AMOUNT	UNIT	QTY	UNIT PRICE	AMOUNT
IRWD CAPITAL - MOBILIZATION - PRO RATA SHARE									
1	Develop Construction Water (Pro Rata Share)	LS	1	\$ 8,628.59	\$ 8,628.59	LS	1	\$ 21,252.69	\$ 21,252.69
2	Stormwater Pollution Prevention Plan (SWPPP) (Pro Rata Share)	LS	1	\$ 43,857.05	\$ 43,857.05	LS	1	\$ 51,006.46	\$ 51,006.46
3	Construction Schedule (Pro Rata Share)	LS	1	\$ 2,975.38	\$ 2,975.38	LS	1	\$ 12,751.61	\$ 12,751.61
4	Traffic Control (Pro Rata Share)	LS	1	\$ 3,910.50	\$ 3,910.50	LS	1	\$ 25,503.23	\$ 25,503.23
5	Mobilization (Pro Rata Share)	LS	1	\$ 184,048.31	\$ 184,048.31	LS	1	\$ 413,152.32	\$ 413,152.32
	<i>Subtotal Mobilization (pro rata)</i>			\$ 243,419.83				\$ 523,666.32	
IRWD CAPITAL - DOMESTIC WATER									
19	12" PVC, C900, DR14 Domestic Water Pipe	LF	3,188	\$ 143.00	\$ 455,884.00	LF	3,188	\$ 240.00	\$ 765,120.00
20	Fire Hydrant, 6" Lateral	EA	7	\$ 14,400.00	\$ 100,800.00	EA	7	\$ 25,000.00	\$ 175,000.00
21	2" Air Release and Vacuum Relief	EA	1	\$ 10,860.00	\$ 10,860.00	EA	1	\$ 21,000.00	\$ 21,000.00
22	Temporary Flush-Out Assembly	EA	3	\$ 6,555.00	\$ 19,665.00	EA	3	\$ 8,300.00	\$ 24,900.00
23	12" Butterfly Valve, CL 150, FL x FL	EA	10	\$ 5,344.00	\$ 53,440.00	EA	10	\$ 15,000.00	\$ 150,000.00
24	12"x12"x12" D.I. Flanged Cut-In Tee	EA	1	\$ 3,225.00	\$ 3,225.00	EA	1	\$ 6,500.00	\$ 6,500.00
25	12"x10" D.I. Reducer, FL x PO	EA	2	\$ 2,980.00	\$ 5,960.00	EA	2	\$ 4,500.00	\$ 9,000.00
26	12"x8" D.I. Reducer FL x PO	EA	2	\$ 2,590.00	\$ 5,180.00	EA	2	\$ 4,500.00	\$ 9,000.00
27	12"x12"x6" D.I. Tee, FL x FL x FL	EA	7	\$ 2,770.00	\$ 19,390.00	EA	7	\$ 5,600.00	\$ 39,200.00
28	12" D.I. FL x PO Adapter	EA	17	\$ 2,200.00	\$ 37,400.00	EA	17	\$ 1,600.00	\$ 27,200.00
29	12" 90 D.I. Bend, FL x FL	EA	2	\$ 2,415.00	\$ 4,830.00	EA	2	\$ 5,700.00	\$ 11,400.00
30	12" 11.25 D.I. Bend, PO x PO	EA	10	\$ 1,860.00	\$ 18,600.00	EA	10	\$ 3,500.00	\$ 35,000.00
	<i>Subtotal Domestic Water</i>			\$ 735,234.00				\$ 1,273,320.00	
IRWD CAPITAL - SEWER									
31	15" PVC, SDR 35, Sewer Pipe	LF	1,744	\$ 271.00	\$ 472,624.00	LF	1,744	\$ 330.00	\$ 575,520.00
32	12" PVC, SDR 35, Sewer Pipe	LF	785	\$ 204.00	\$ 160,140.00	LF	785	\$ 215.00	\$ 168,775.00
33	Casing Test Station	EA	1	\$ 15,000.00	\$ 15,000.00	EA	1	\$ 15,000.00	\$ 15,000.00
34	30" Steel Casing	LF	117	\$ 760.00	\$ 88,920.00	LF	117	\$ 600.00	\$ 70,200.00
35	15"x8" PVC SDR 35 Reducer	EA	1	\$ 655.00	\$ 655.00	EA	1	\$ 1,000.00	\$ 1,000.00
36	60" Dia. Manhole	EA	3	\$ 47,200.00	\$ 141,600.00	EA	3	\$ 30,000.00	\$ 90,000.00
37	48" Dia. Manhole	EA	4	\$ 31,950.00	\$ 127,800.00	EA	4	\$ 25,000.00	\$ 100,000.00
38	48" Dia. Manhole with Manhole Liner	EA	2	\$ 37,345.00	\$ 74,690.00	EA	2	\$ 30,000.00	\$ 60,000.00
39	Core Drill, Rechannel and Connect to Existing Manhole	EA	1	\$ 16,275.00	\$ 16,275.00	EA	1	\$ 38,000.00	\$ 38,000.00
40	Remove Sewer Pipe	LF	159	\$ 66.00	\$ 10,494.00	LF	159	\$ 272.00	\$ 43,248.00
	<i>Subtotal Sewer</i>			\$ 1,108,198.00				\$ 1,161,743.00	
IRWD CAPITAL - RECYCLED WATER									
41	8" PVC (Purple), C900, SDR14 Recycled Water Pipe	LF	10,413	\$ 93.00	\$ 968,409.00	LF	10,413	\$ 200.00	\$ 2,082,600.00
42	2" Air Release and Vacuum Relief	EA	4	\$ 10,635.00	\$ 42,540.00	EA	4	\$ 17,000.00	\$ 68,000.00
43	Temporary Flush-Out Assembly	EA	3	\$ 5,600.00	\$ 16,800.00	EA	3	\$ 8,000.00	\$ 24,000.00
44	4" Blow Off/Bottom Drain Assembly	EA	3	\$ 21,660.00	\$ 64,980.00	EA	3	\$ 32,000.00	\$ 96,000.00
45	12" Butterfly Valve, CL 150, FL x FL	EA	6	\$ 5,250.00	\$ 31,500.00	EA	6	\$ 15,000.00	\$ 90,000.00
46	8" Resilient Wedge Gate Valve, CL 150, FL x FL	EA	19	\$ 3,920.00	\$ 74,480.00	EA	19	\$ 15,000.00	\$ 285,000.00
47	12"x12"x8" D.I. Flanged Cut-In Tee	EA	3	\$ 2,860.00	\$ 8,580.00	EA	3	\$ 6,000.00	\$ 18,000.00
48	8"x8"x8" D.I. Flanged Cut-In Tee	EA	1	\$ 2,040.00	\$ 2,040.00	EA	1	\$ 5,000.00	\$ 5,000.00
49	12" D.I. FL x PO Adapter	EA	6	\$ 2,200.00	\$ 13,200.00	EA	6	\$ 1,600.00	\$ 9,600.00
50	8"x8"x8"x8" D.I. Cross, FL x FL x FL x FL	EA	1	\$ 2,260.00	\$ 2,260.00	EA	1	\$ 5,300.00	\$ 5,300.00
51	8"x8"x8" D.I. Tee, FL x FL x FL	EA	1	\$ 2,040.00	\$ 2,040.00	EA	1	\$ 5,000.00	\$ 5,000.00
52	8" D.I. FL x PO Adapter	EA	21	\$ 1,600.00	\$ 33,600.00	EA	21	\$ 1,200.00	\$ 25,200.00
53	8" 90 D.I. Bend, FL x PO	EA	2	\$ 1,660.00	\$ 3,320.00	EA	2	\$ 4,000.00	\$ 8,000.00
54	8" 90 D.I. Bend, PO x PO	EA	2	\$ 1,625.00	\$ 3,250.00	EA	2	\$ 4,500.00	\$ 9,000.00
55	8" 45 D.I. Bend, FL x PO	EA	6	\$ 1,696.00	\$ 10,176.00	EA	6	\$ 4,000.00	\$ 24,000.00
56	8" 45 D.I. Bend, PO x PO	EA	8	\$ 1,535.00	\$ 12,280.00	EA	8	\$ 3,500.00	\$ 28,000.00
57	8" 22.5 D.I. Bend, FL x PO	EA	1	\$ 1,590.00	\$ 1,590.00	EA	1	\$ 4,500.00	\$ 4,500.00
58	8" 22.5 D.I. Bend, PO x PO	EA	3	\$ 1,450.00	\$ 4,350.00	EA	3	\$ 5,000.00	\$ 15,000.00
59	8" 11.25 D.I. Bend, FL x PO	EA	1	\$ 1,580.00	\$ 1,580.00	EA	1	\$ 4,500.00	\$ 4,500.00
60	8" 11.25 D.I. Bend, PO x PO	EA	2	\$ 1,460.00	\$ 2,920.00	EA	2	\$ 4,200.00	\$ 8,400.00
	<i>Subtotal Recycled Water</i>			\$ 1,299,895.00				\$ 2,815,100.00	
TOTAL IRWD CAPITAL				\$ 3,386,746.83				\$ 5,773,829.32	

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Exhibit "D"



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REIMBURSEMENT AGREEMENT BETWEEN
IRVINE RANCH WATER DISTRICT
AND THE CITY OF IRVINE
FOR
IRWD FACILITIES RELATED TO THE
GATEWAY RESIDENTIAL VILLAGE DEVELOPMENT

This Reimbursement Agreement (“Agreement”) is dated _____, 2026 (“Effective Date”) and is between IRVINE RANCH WATER DISTRICT (“IRWD”), a California water district formed and existing pursuant to the California Water District Law of the State of California, and THE CITY OF IRVINE, a California municipal corporation and charter city (“City”)(each a “Party” and collectively the “Parties”),

A. The City intends to construct street and utility improvements for the Gateway Residential Village Development (the “Project”), within the jurisdictional boundaries of the City.

B. IRWD seeks to have the City design and construct, within or adjacent to street improvements for the Project, the following facilities generally depicted on Exhibit “A” (the infrastructure collectively referred to as “IRWD Facilities” and all design and construction work for such facilities referred to as the “Work”);

- Approximately 7,102 lineal feet (LF) of 12-inch domestic water pipeline
- Approximately 1,486 LF of 12-inch sewer pipeline
- Approximately 1,814 LF of 6-inch recycled water pipeline and
- Two domestic water pressure reducing valve (PRV) stations

C. The Parties have determined that it will be more economical and expedient for the City to perform the Work at the City's cost, which shall be reimbursed by IRWD.

D. Upon the completion of the Work, the Parties intend that the IRWD Facilities installed as part of the Work will become the property of IRWD in accordance with the terms of this Agreement.

The Parties therefore agree as follows:

1. IRWD FACILITIES. As part of the Project, City shall initiate and pursue to completion the Work and perform the Work in accordance with this Agreement.

2. PLANS. The City shall complete the construction portion of the Work pursuant to project plans and specifications (“Plans and Specifications”) prepared by City's design engineer. The City shall prepare the Plans and Specifications in conformance with the applicable portions of IRWD’s latest editions of the *Construction Manual for the Construction of Water, Sewer, and Reclaimed Water Facilities* (the “Construction Manual”), the *Procedural Guidelines and General Design Requirements* (the “Procedural Guidelines”), and submit the Plans and Specifications to IRWD no later than 30 days prior to advertising for bids for the construction of the Project. The City shall not advertise the Project for

bids until IRWD has reviewed and provided the City with its written approval of the Plans and Specifications and any bidding documents pertaining to the IRWD Facilities. IRWD shall, within the period described in the previous sentence, review the Plans and Specifications and bidding documents and indicate approval or request changes. The Parties shall cooperate in good faith to address such requests. IRWD shall inspect the construction of the IRWD Facilities as provided in Section 7, below. The costs associated with the design of the Plans and Specifications shall be calculated on a time-and-material basis for services and are currently estimated at \$600,000, representing approximately 10% of the total estimated construction costs listed in Section 3, below. The design cost estimate is subject to adjustment for actual costs incurred by the City for the design services, including design services required in connection with any approved design revisions and change orders approved as specified in Section 4, below.

3. BIDDING AND AWARD.

3.1 The construction of the Work shall be included in the City's contract(s) awarded for the construction of the Project. The IRWD Facilities must be bid as a separate item or items that can be deleted from the Project. During the bidding process, the City shall deliver to IRWD one complete set of the bid documents that include the IRWD Facilities, and deliver all related addenda concurrently with the distribution of the documents to prospective bidders. After the City's opening of the bids for the Project, the City shall submit the bids or a spread sheet summary of the bids to IRWD.

3.2 IRWD shall have no less than ten days from its receipt of the bid results to review and either approve or reject the bid submitted by the bidder identified to IRWD by City as the City's proposed successful bidder. Bids received for the construction of any IRWD Facilities shall be subject to the approval of IRWD prior to award of any Project construction contract that includes the IRWD Facilities.

3.3 If IRWD does not approve any of the bids by the successful bidder for the IRWD Facilities, then either Party may terminate this Agreement upon 24 hours' prior written notice. Upon such termination, the City will have no further obligation to perform the Work, and IRWD may elect to install the IRWD Facilities with its own contractor. If IRWD does so elect, the City shall provide reasonable construction windows and site access for IRWD's contractors.

3.4 If IRWD approves the IRWD Facilities bid items of the successful bidder, then City shall cause the IRWD Facilities to be constructed as part of the contract awarded to that bidder, except that the Parties acknowledge that City retains the right to reject all bids and not award a contract for the Project or the IRWD Facilities.

3.5 The total cost for the construction of the IRWD Facilities is estimated to be \$6,333,240, but the actual amount that IRWD will reimburse the City shall be based upon the actual costs of construction.

3.6 Upon its award of the construction contract, the City shall provide IRWD with one original copy of the fully-executed contract documents and one copy of the bid package relating to the IRWD Facilities received from the successful bidder.

4. DESIGN REVISIONS AND CHANGE ORDERS.

4.1 IRWD shall reimburse the City for any change orders for revisions requested by IRWD required for the Work and for any change orders for revisions required for the Work resulting from the existence of a condition which could not reasonably have been foreseen at the time the proposals were

received. The City shall furnish IRWD with copies of any proposed change orders to the contract no later than five business days after the initiation of the changed conditions to the contract, which will be subject to IRWD's approval, if, and to the extent that, IRWD Facilities are affected.

4.2 IRWD shall promptly review proposed change orders and provide the City with a response no later than five business days after receiving any proposed change order information from City. IRWD will not unreasonably cause delay to the construction schedule of the Project in reviewing proposed change orders for the Work.

4.3 Notwithstanding any other provision of this Agreement, any IRWD approval under this Section 4 will be deemed given if the City does not receive a response from IRWD within eight business days after the City furnishes copies of the proposed change order pursuant to Section 4.1, unless the Parties otherwise agree in a writing executed by both Parties.

5. REIMBURSEMENT.

5.1 IRWD shall reimburse the City for the following costs for the Work and the IRWD Facilities, (collectively, the "Costs"): (1) the actual costs of design, materials, and construction incurred by City in connection with the domestic water and recycled water portions of the Work; (2) the actual costs of design, materials, and construction related to up-sizing of existing 8-inch sewer to 12-inch sewer except that IRWD will not reimburse for costs related to sewer bypass, street re-paving, traffic control or any other costs that are necessary due to sewer upsizing within an existing street; (3) any costs associated with IRWD-approved change orders for revisions that are reimbursable in accordance with Section 4; (4) a pro rata share of mobilization and demobilization costs corresponding to the Work bid schedule costs in proportion to the overall Project bid schedule costs; and (5) an administration fee which will be equal to four percent (4%) of the actual cost of construction (costs paid directly to City's contractor for construction only, excluding any cost for design, surveying, geotechnical or other work) of the Work. This amount will be deemed to cover all costs of project administration including, but not limited to, accounting, inspection, surveying, compaction testing, geotechnical services, geotechnical engineering, permits, bonds, legal fees, construction administration, submittal reviews, rights of way, insurance, and all other items not specifically included in the bid schedules for the Work. City shall keep a separate accounting of all Costs incurred by City in relation to the Work.

5.2 No later than 30 days after IRWD's receipt of a contractor invoice for IRWD's portion of a construction progress payment on a certified form provided by the contractor to the City, accompanied by such supporting documentation as may be necessary to show the amounts which represent Costs of the IRWD Facilities, IRWD shall pay the progress payment to the City. As partial security for the fulfillment of the contractor's obligations to complete the Work, the City will retain from progress payments made to the contractor 10% of such estimated value from each progress payment requested.

5.3 No later than 60 days after IRWD's acceptance of the IRWD Facilities as provided in Section 8, the City shall make a final accounting of the Costs and submit that accounting to IRWD along with an invoice for the Costs and any supporting documentation necessary to show the amounts which represent Costs. Amounts paid pursuant to progress payment invoices will be subject to adjustment in the final accounting. IRWD shall pay to City the total amount of the Costs no later than 30 days after IRWD's receipt of the final accounting.

6. LAWS, ORDINANCES, RULES AND REGULATIONS. The City shall require in its contract for the Work that its contractor be fully informed of and comply with all laws, ordinances, rules and regulations, including, but not limited to, all applicable requirements of the California Labor Code,

prevailing wage laws, and the Construction Manual, Rules and Regulations, and Procedural Guidelines in performing the Work.

7. DESIGN AND INSPECTION. IRWD will have sole and absolute discretion as to all aspects of the design and inspection of the Work, and IRWD will be entitled to inspect the Work as it deems necessary to assure compliance with the Plans and Specifications, including shop drawing review and material inspection. IRWD will have access to all phases of the Project for the purpose of those inspections; provided, however, all questions regarding the Work or Project will be directed to City's resident engineer or its designee. IRWD will promptly notify City of any portion of the Work which appears not to conform to the Plans and Specifications. IRWD's determination as to conformity of the Work with the Plans and Specifications will be made in IRWD's sole and absolute discretion. IRWD will not unreasonably withhold its approval as to conformity of the Work with the Plans and Specifications. The City shall require its contractor to perform the Work so that the IRWD Facilities conform to the Plans and Specifications. The City shall assume full responsibility for certifying or obtaining certification of the compaction of backfill material over the IRWD Facilities within the Trench Zone as well as within the Pipe Bedding Zone (both of which shall be identified in the Plans and Specifications) to meet the requirements of the latest versions of the Construction Manual and Procedural Guidelines.

8. ACCEPTANCE. IRWD shall accept the IRWD Facilities when the Work has been completed by the City in accordance with all requirements of the approved Plans and Specifications, including any change orders approved by IRWD as provided in Section 4, and in conformance with the requirements of the latest versions of the Construction Manual and Procedural Guidelines. At the time of completion and acceptance of the IRWD Facilities, the City shall furnish IRWD with one copy of the contractor's redlined set of "record" drawings (showing all revisions, manufacturers and types of valves, pipe and fittings as required by IRWD) and one copy of the compaction reports and certificate, survey notes and cut sheets.

9. OWNERSHIP. Notwithstanding the fact that City shall accomplish the Work subject to reimbursement, the IRWD Facilities, together with the necessary franchises, licenses, easements, rights-of-way, and other privileges, will at all times be subject to the applicable rates, rules and regulations of IRWD, as modified or amended from time to time. The City hereby disclaims any interest in the IRWD Facilities and hereby transfers and assigns to IRWD any and all right, title, and interest it may have in the IRWD Facilities upon their completion after acceptance in writing by IRWD. IRWD shall own, operate and maintain the IRWD Facilities following their acceptance.

10. GUARANTEES. The City shall, pursuant to the requirements of the Plans and Specifications, cause any contractor for the Work to guarantee the IRWD Facilities against defects in workmanship and materials for a period of one year from the date of acceptance by City, which acceptance shall be given only after acceptance by IRWD as provided in Section 8. City shall cause the IRWD Facilities to be brought or restored to full compliance with the requirements of the Plans and Specifications, including any test requirements, for any portions of the IRWD Facilities that during the one-year period are found not to be in conformance with the provisions of the Plans and Specifications. This guarantee is in addition to any and all other warranties, express or implied, from the City's contractors or material manufacturers, with respect to the IRWD Facilities. The guarantee and obligations under this section will in no way be relieved by IRWD's inspection and/or acceptance of the IRWD Facilities. This section sets forth the entire guarantee and warranty of the City with respect to the IRWD Facilities. The express or implied warranties of other persons with respect to IRWD Facilities will in no way be limited by the guarantee and warranty of the City contained in this section. If requested by IRWD, the City shall assign to IRWD the contractor's guarantee and/or any other guarantees or warranties relating to the IRWD Facilities.

11. INDEMNIFICATION.

11.1 City shall indemnify, defend and hold IRWD, its officers, agents, employees, and engineers harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen during performance of the Work as a result of any act or omission of the City, or its agents, employees, engineers, or contractors, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any act, omission, or negligence of IRWD, its officers, agents, employees or engineers or by any act or omission for which IRWD, its officers, agents, employees or engineers are liable without fault.

11.2 IRWD shall indemnify, defend and hold City, its officers, agents, and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen either (i) a result of any act or omission of IRWD, or its agents, employees, engineers, or contractors, with respect to the IRWD Facilities or Work; or (ii) following IRWD acceptance of the IRWD Facilities, with respect to maintenance and operation of the IRWD Facilities, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any negligence of City, its officers, agents, employees or engineers, or by any act or omission for which City, its officers, agents, employees or engineers are liable without fault.

11.3 Except for the payment of money, neither Party will be liable for any delays or other non-performance resulting from circumstances or causes beyond its reasonable control, including without limitation, fire or other casualty, act of God, strike or labor dispute, war or other violence, acts of third parties, or any law, order, or requirement of any governmental agency or authority other than the Parties.

12. INSURANCE AND BONDING. City shall cause its contractors to provide performance and payment bonds for the construction of the Project including the Work and to obtain insurance coverage sufficiently broad to insure the matters set forth in this Agreement and to include IRWD, its officers, agents, employees and engineers, as additional insureds on all insurance policies that City requires its contractors to provide. As evidence of such insurance coverage, City shall, prior to commencement of performance of the Work, provide IRWD with certificates of insurance and insurance endorsements from City's contractor(s) in the same form provided to City under the contract for the Work.

13. TERMINATION.

13.1 IRWD may terminate this Agreement at any time, subject to the provisions of this section, by providing no less than five business days' prior written notice to City, except as noted in Section 3 with respect to unapproved bids. If, at the request or direction of a party other than City, the performance of the Work is not accomplished or completed, IRWD shall remain obligated for the actual amount of the Costs incurred by City to the date of termination and for any and all Costs necessary to put any work that has already commenced on the IRWD Facilities as of the date of termination into a form that will allow for the safe completion of the Project.

13.2 If the Project is canceled or modified so as to eliminate the necessity of the construction of the IRWD Facilities, City shall have the right to terminate this Agreement and thereby terminate its obligation to perform the Work, by providing no less than five business days' prior written notice to IRWD. In such case, IRWD will not be obligated for any design or any other Costs incurred by City. If IRWD elects to perform the Work, IRWD may, but will not be obligated to, acquire the design or other work from City by separate agreement.

14. NOTICE. Any notice or other written instrument required or permitted by this Agreement to be given to either Party shall be deemed received when personally served or 24 hours after being deposited in the U.S. Mail, postage prepaid, registered or certified, return receipt requested and addressed as follows:

IRWD: Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000
Attn: General Manager

CITY: City of Irvine
1 Civic Center Plaza
Irvine, CA 92606
Attn: Director of Public Works/City Engineer/Assistant Executive Director

15. SUCCESSORS AND ASSIGNS; INTEGRATION; AMENDMENT. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of City and IRWD. This Agreement constitutes the entire Agreement between City and IRWD and supersedes all prior understandings and agreements between the Parties with respect to the Work for the Project. This Agreement may be modified only in writing signed by both Parties.

16. LEGAL FEES. In the event of any declaratory or other legal or equitable action instituted between City and IRWD in connection with this Agreement, the prevailing Party shall be entitled to recover from the losing Party its reasonable costs and expenses, including court costs and reasonable attorneys' fees.

17. DEEMED APPROVED. Except as specifically provided otherwise under this Agreement, any approval required to be given by either Party pursuant to this Agreement shall be deemed given if no response to the Party's request for such approval is received by the requesting Party within ten calendar days following the written request for such approval.

18. SEVERABILITY. If any term, provision, covenant or condition of this Agreement is held to be invalid, void or other unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby, and each term provision, covenant or condition of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

19. APPLICABLE LAW. This Agreement shall be construed and enforced in accordance with the laws of the State of California.

20. WAIVER. The waiver of any provision of this Agreement by either Party shall not be deemed to be a waiver of any other provision or of any preceding or subsequent breach.

[SIGNATURES ON FOLLOWING PAGE]

The Parties are signing this Agreement to be effective as of the Effective Date.

IRVINE RANCH WATER DISTRICT

By _____
Paul Cook, General Manager

Dated _____

ATTEST:

By _____
Secretary/Assistant Secretary

Dated _____

APPROVED AS TO FORM:
Hanson Bridgett LLP

By _____
Claire Collins, General Counsel

Dated _____

CITY OF IRVINE

By _____
Larry Agran, Mayor

Dated _____

ATTEST:

By _____
Carl Petersen, City Clerk

Dated _____

APPROVED AS TO FORM:

By _____
Jeffrey T. Melching, City Attorney

Dated _____

Exhibit "A"
to
Reimbursement Agreement



Depiction of Project

Exhibit "A"
to
Reimbursement Agreement
Capital Domestic Water Facilities

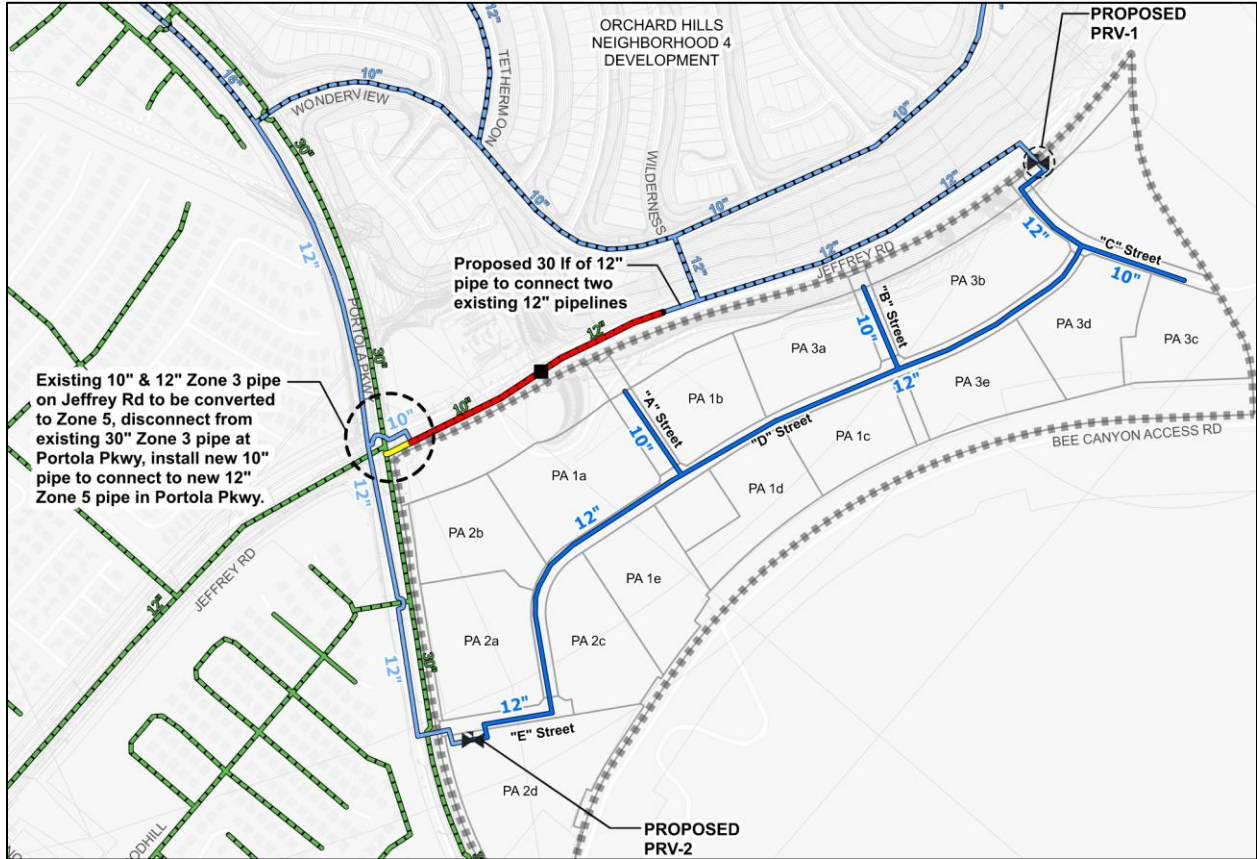


Exhibit "A"
to
Reimbursement Agreement

Table 8-13. Proposed Potable Water System Facility Cost

Item	Quantity	Unit	Unit Costs	Total	IRWD's Portion	Developer's Portion
10-inch PVC Pipe	1,291	LF	\$370	\$477,670	\$- -	\$477,670
10-inch PVC Pipe (Offsite)	245	LF	\$460	\$112,700	\$- -	\$112,700
12-inch PVC Pipe	4,294	LF	\$570	\$2,447,580	\$2,447,580	\$- -
12-inch PVC Pipe (Offsite)	2,808	LF	\$660	\$1,853,280	\$1,853,280	\$- -
Primary PRV ¹	1	EA	\$425,000	\$425,000	\$425,000	\$- -
Secondary PRV	1	EA	\$350,000	\$350,000	\$350,000	\$- -
Total Potable Water Construction Cost Subtotal				\$5,666,230	\$5,075,860	\$590,370
Contingency, Engineering, Admin (50%)				\$2,833,115	\$2,537,930	\$295,185
Total Cost for Development				\$8,499,345	\$7,613,790	\$885,555

¹ Primary PRV unit cost includes electrical and telemetry equipment

Estimated Domestic Water Cost Exhibit

Exhibit "A"
to
Reimbursement Agreement
Capital Sanitary Sewer Facilities

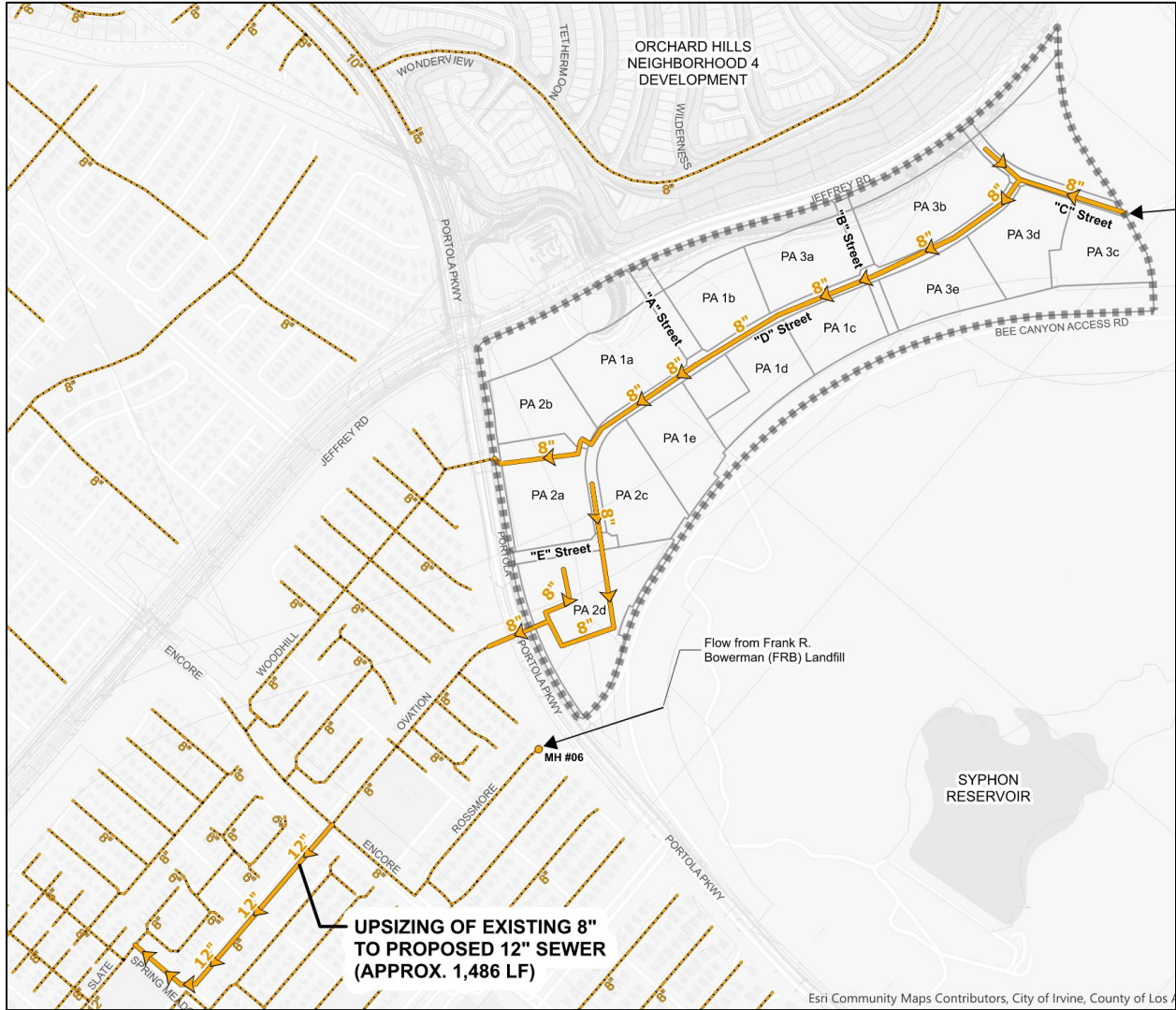


Exhibit "A"
to
Reimbursement Agreement

Table 8-14. Proposed Sewer System Facility Cost

Item	Quantity	Unit	Unit Costs	Total	IRWD's Portion	Developer's Portion
8-inch PVC Pipe	5,930	LF	\$400	\$2,372,000	\$- -	\$2,372,000
12-inch PVC Pipe (Offsite)	1,486	LF	\$825	\$1,225,950	\$631,550	\$594,400
Total Sewer Construction Cost Subtotal				\$3,597,950	\$631,550	\$2,966,400
Contingency, Engineering, Admin (50%)				\$1,798,975	\$315,775	\$1,483,200
Total Cost for Development				\$5,396,925	\$947,325	\$4,449,600

Estimated Sanitary Sewer Cost Exhibit

Exhibit "A"
to
Reimbursement Agreement
Capital Recycled Water Facilities

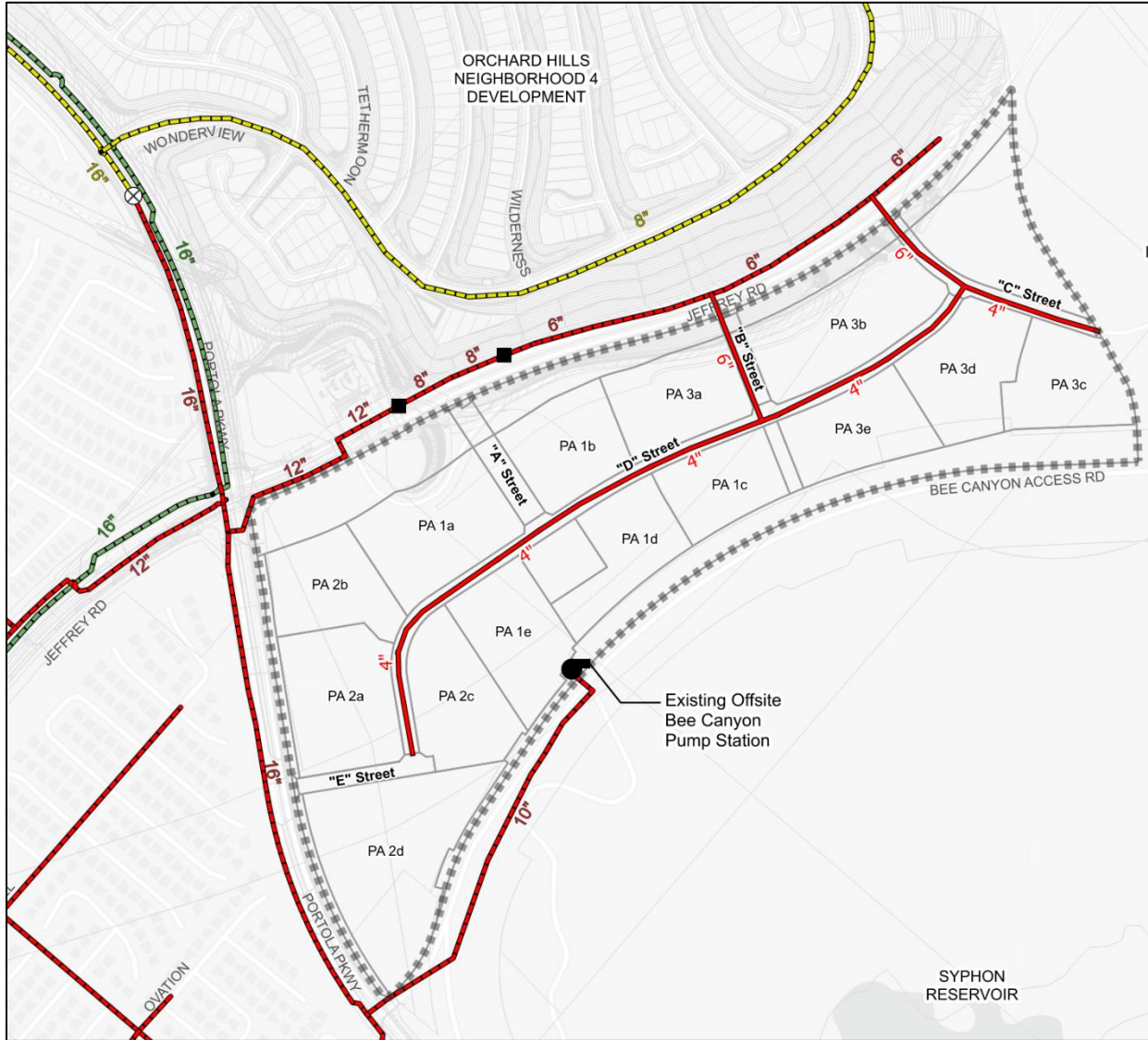


Exhibit "A"
to
Reimbursement Agreement

Table 8-15. Proposed Non-Potable Water System Facility Cost


Item	Quantity	Unit	Unit Costs	Total	IRWD's Portion	Developer's Portion
4-inch PVC Pipe	3,129	LF	\$225	\$704,025	\$- -	\$704,025
6-inch PVC Pipe	1,814	LF	\$345	\$625,830	\$625,830	\$- -
Total Non-Potable Water Construction Cost Subtotal				\$1,329,855	\$625,830	\$704,025
Contingency, Engineering, Admin (50%)				\$664,928	\$312,915	\$352,013
Total Cost for Development				\$1,994,783	\$938,745	\$1,056,038

Estimated Recycled Water Cost Exhibit

April 21, 2026

Prepared by: T. Sanchez / J. Moeder

Submitted by: K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

HARDING CANYON DAM ALTERNATIVES ANALYSIS CONSULTANT SELECTION

SUMMARY:

IRWD acquired Harding Canyon Dam when it consolidated with Santiago County Water District in 2006. This concrete facility, the area behind which is completely silted in, is at the end of its useful life. Staff solicited proposals from five consultants to prepare an alternatives analysis to determine a long-term plan for the structure. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Geosyntec in the amount of \$277,700 for engineering services for the Harding Canyon Dam Alternatives Analysis project.

BACKGROUND:

Harding Canyon Dam is a concrete facility located in Harding Canyon, just northeast of Modjeska in unincorporated Orange County. The dam was constructed around 1900 to an original height of 20 feet and at the time stored approximately 15 acre-feet of native runoff from a five square mile watershed. In 1924, the dam height was increased to 30 feet, which increased the storage capacity to approximately 23 acre-feet as it continued to provide water for the then Modjeska Ranch Company. Since 1969, the reservoir behind the dam has been silted in, greatly minimizing its ability to store water.

IRWD acquired the dam and associated the Manning Water Treatment Plant in 2006 when it consolidated with Santiago County Water District. In 2025, IRWD stopped using the Manning Treatment Plant due to high operating costs and inconsistent availability of water stored in Harding Canyon Reservoir. This facility has reached the end of its useful life and a comprehensive long-term plan for the structure is now necessary.

Consultant Selection:

Staff issued a Request for Proposals to five firms for engineering services to develop and evaluate long-term plans for the dam. The invited firms included GeoPentech, Geosyntec, GHD, HDR, and Stantec. Staff received proposals from GeoPentech, Geosyntec, and GHD. HDR and Stantec declined to submit citing existing workload constraints. While all proposals received met the project objectives and presented qualified teams, Geosyntec's proposal thoroughly identify numerous alternatives and effectively explained the use of available information to complete the evaluation. Its proposal included a list of more than 20 different solutions with a brief feasibility assessment for each one. These alternatives were then reduced to a shortlist of three that Geosyntec suggested carrying forward for further evaluation as part of the alternative analysis. Geosyntec's list of project experience includes several alternative evaluations, geotechnical investigations, and hydraulic and sedimentation studies specifically for dam projects. The consultant selection matrix is attached as Exhibit "A", and Geosyntec's scope of work and fee proposal are attached as Exhibit "B".

Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Geosyntec in the amount of \$277,700 for engineering services for the Harding Canyon Dam Alternatives Analysis project.

FISCAL IMPACTS:

The Alternatives Analysis is a component of the Harding Canyon Dam Rehabilitation, Project 12513, which is included in the FY 2025-26 Capital Budget. The existing budget is sufficient to fund the recommendation presented herein.

ENVIRONMENTAL COMPLIANCE:

This study is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262 which provides exemption for feasibility and planning studies.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with Geosyntec, Inc. in the amount of \$277,700 for engineering design services for the Harding Canyon Dam Alternatives Analysis, Project 12513.

LIST OF EXHIBITS:

Exhibit "A" – Consultant Selection Matrix
Exhibit "B" – Scope of Work and Fee Proposal

Exhibit "A"
CONSULTANT SELECTION MATRIX

Harding Canyon Dam - Alternatives Analysis							
Item	Description	Weights	GeoPentech		Geosyntec		GHD
A TECHNICAL APPROACH							
1	Project Understanding & Approach	40%	2		1		3
2	Project Experience	30%	2		1		3
3	Project Team	30%	3		1		2
	<u>Weighted Score</u>		2.3		1.0		2.7
	Ranking of Consultants		2		1		3
B SCOPE OF WORK							
TASK		Task Hours	Fee	Task Hours	Fee	Task Hours	Fee
1	Project Management	88	\$24,640	242	\$69,763	182	\$42,777
2	Alternatives Analysis	829	\$252,445	716	\$207,937	803	\$183,085
2a	Background Research	114	\$24,500	32	\$9,494	32	\$7,176
2b	Develop Evaluation Criteria	56	\$14,480	20	\$6,251	32	\$7,826
2c	Studies for Alternatives Development	262	\$119,685	118	\$41,475	82	\$35,302
2d	Develop Alternatives	116	\$28,320	134	\$38,538	90	\$21,446
2e	Prelim Environmental/Permits	104	\$24,600	41	\$11,314	185	\$36,917
2f	Engineering Analysis & Cost Estimate	77	\$18,800	271	\$71,451	98	\$22,522
2h	Alternatives Report	100	\$22,060	100	\$29,414	284	\$51,896
	Total Engineering Services Fee	917	\$277,085	958	\$277,700	985	\$225,862
	<u>Optional Tasks</u>						
2c.2	Sedimentation Study	120	\$27,600	not included		245	\$68,764
2g	Risk Analysis	108	\$28,920	not included		100	\$24,602
	Total		\$56,520		\$0		\$93,366
	Total Engineering Services Fee with Optional Tasks	1,145	\$333,605	958	\$277,700	1,330	\$319,228
C OTHER							
Subconsultants							
Environmental		Panorama Environmental		LSA Associates			
Cost Estimating / Constructability		Integrated Engineering & Construction					
Exploratory Drilling		BC2 Environmental		Gregg Drilling LLC		2R Drilling *AP Engineering & Testing	
Survey		Huitt-Zollars					
Sediment Transport						Northwest Hydraulic Consultants	
Civil/Geomorphology/Sedimentology/Ecosystem				Inter-Fluve			
Utility Clearance				SubSurface Surveys & Associates			
Exceptions taken to IRWD Std. Contract		Yes		None		None	
DIR Numbers Provided		Yes		Yes		Yes	
Insurance (Professional & General Liability)		Yes		Yes		Yes	
Personnel							
Role		Years of Experience		Years of Experience		Years of Experience	
Project Manager		Rambod Hadidi	20	Chris Conkle	20	Soma Balachandran	38
Project Engineer		Doug Wahl	20			Shuyu Liu	36
Assistant Project Engineer		William Erickson	10				
Dam Rehab Alternative Lead				Alex Lin	12		
Sediment Retention Structure Alternative Lead				Derek Morley	35		
Channelized Sediments Alternative Lead				Mike Burke	30		

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PROPOSAL

For the Irvine Ranch Water District
Alternatives Analysis for the Harding Canyon Dam

January 20, 2026

Prepared by:



Prepared for:



Mr. Jacob Moeder, PE
Engineering Manager, Dams & Storage
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

January 20, 2026
Geosyntec Consultants, Inc.
1031 S. Broadway, Suite 300
Los Angeles, CA 90015

Subject: Irvine Ranch Water District Request for Proposals – Alternatives Analysis for the Harding Canyon Dam

Dear Mr. Moeder,

IRWD’s decision regarding Harding Canyon Dam requires a multidisciplinary evaluation that goes beyond conventional dam repair analysis. The dam’s age and condition, the fully sedimented reservoir, the identified risk-driving PFMs, and the downstream setting collectively require an approach that integrates dam rehabilitation, dam removal, sediment management, environmental and permitting considerations, constructability, cost, and long-term performance. Geosyntec’s team has been assembled specifically to address these needs.

Why Geosyntec – Unique Qualifications and Experience with IRWD

Geosyntec brings Irvine Ranch Water District a combination of direct project familiarity, technical depth, and a focused alternatives-analysis approach tailored to this effort, including the following attributes:

- **Direct Experience on Harding Canyon Dam** – Geosyntec has supported IRWD’s dam safety program, including recent seismic stability evaluation and a Partially Quantitative Risk Analysis for Harding Canyon Dam. This experience provides continuity between the completed risk assessment and the proposed alternatives analysis, allowing the evaluation to build efficiently on prior findings. Our team understands IRWD’s risk-informed decision-making framework and how alternatives must be evaluated in terms of risk reduction effectiveness, feasibility, and long-term operability.
- **Specialized Expertise for the Alternatives Analysis** – Our team combines complementary expertise to support a comprehensive evaluation. Geosyntec provides leadership in dam engineering, hydrology and hydraulics, geotechnical coordination, sediment management, and alternatives analysis for regulated dams. Inter-Fluve contributes specialized expertise in dam removal, sediment modification, and river system response, which is critical given the fully sedimented reservoir and potential removal alternatives. LSA Associates provides deep experience in local Orange County environmental planning and permitting, securing regulatory pathways, evaluating environmental impacts, and developing mitigation measures early and transparently in the project planning process.
- **Tailored Approach for Actionable Solution** – The proposed workplan is structured to start broad and then narrow efficiently, documenting a comprehensive initial array of alternatives and focusing effort on a short list of technically viable, decision-relevant options. This approach is intended to produce a clear, defensible, and actionable alternatives analysis, while avoiding unnecessary iteration, cost escalation, or schedule risk.

Cover Letter

Geosyntec accepts the terms and conditions of IRWD's Professional Services Agreement and has no proposed modifications. If you have any questions, please contact Chris Conkle, P.E., G.E., our proposed Project Manager, at (714) 465-1214.

Sincerely,



Chris Conkle, PE, GE | Principal
(714) 465-1214
CConkle@geosyntec.com



Derek Morley, PE | Senior Principal
(530) 554-2485
DMorley@geosyntec.com



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Section 1: Scope

Section 1: Scope

Geosyntec has developed a workplan to execute the project scope in a manner that will be efficient yet effective, producing a defensible and actionable outcome. Below, Task 1 is described briefly, summarizing the scope elements of project management. The next section, Task 2 – Alternatives Analysis, is more extensive, providing a detailed description of how we will execute the project to achieve a defensible and actionable outcome.

Task 1 – Project Management

A. Preparation of Project Status Reports

Geosyntec will provide a monthly status report that includes: summary of work completed, budget status, schedule status, and updated project schedule.

B. Meetings and Workshops

Geosyntec will organize, attend, and conduct meetings and workshops as required, including preparation of meeting agendas and meeting minutes (draft and final). Geosyntec plans for a Kick-off meeting and meetings to discuss each of the Draft Alternatives Analysis Report and the Final Alternatives Analysis Report. Site visits are discussed under Task 2.

C. Quality Assurance/Quality Control

Geosyntec will develop and implement QA/QC measures for the work and deliverables.

D. Project Schedule

Geosyntec has developed a draft project schedule based on the workplan described in the following section. We will update the schedule after discussion with IRWD, and we will continue to actively manage and update the schedule, including regular discussion with IRWD of progress and expectations.

Task 2 – Alternatives Analysis

The following description of scope begins with our understanding of the project and our thinking regarding some key elements for success of the alternatives analysis.

Project Understanding and Key Elements for Success

We understand that the Harding Canyon Dam is in poor condition and has multiple risk-driving PFMs. As such, IRWD plans to have an alternatives analysis performed to identify a long-term solution for the dam. We understand that IRWD is open to a broad range of solutions, including solutions that modify the dam, that replace the dam, or that remove the dam. We understand that IRWD is not interested in restoring the reservoir (i.e., the dam impounding water for storage).

Section 1: Scope

The Harding Canyon Dam and the broader site have certain key characteristics that will be especially important for the alternatives analysis and for the long-term success of the project. These key characteristics are:

- The dam has structural deficiencies and/or vulnerabilities throughout the dam and its interface with its foundation and abutments. *Impact – More constraints for methods to remediate the dam, and potential concerns about long-term reliability of dam remediation without additional future actions.*
- The dam retains sediments up to its crest, with the former reservoir area completely filled with sediments; watershed runoff flows across the sediment plain as a creek to the dam-crest spillway notch. *Impact – The impounded sediments either must continue to be retained, or the sediments must be modified in a way that they do not mobilize as debris flows down to the community (due to either hydrologic loading or seismic loading).*
- Although there is drainage release through the dam outlet, the sediments behind the dam are believed to have water within the sediments, commonly up to a shallow depth below the sediment surface. *Impact – The sediments likely are not inherently stable if not retained and may have potential to flow if released.*
- At and downstream of the dam, the stream canyon is narrow, and at a relatively short distance downstream, the stream passes through a residential community within the canyon. *Impact – Stream flows and sediments from the watershed have relatively high potential to impact residences, and alterations to the flow/sediment-delivery regime may alter IRWD’s responsibility for potential impacts to residences.*

So, while the impetus for the project is the condition of the dam, a long-term solution for the site must involve consideration of both the dam and the sediments it retains.

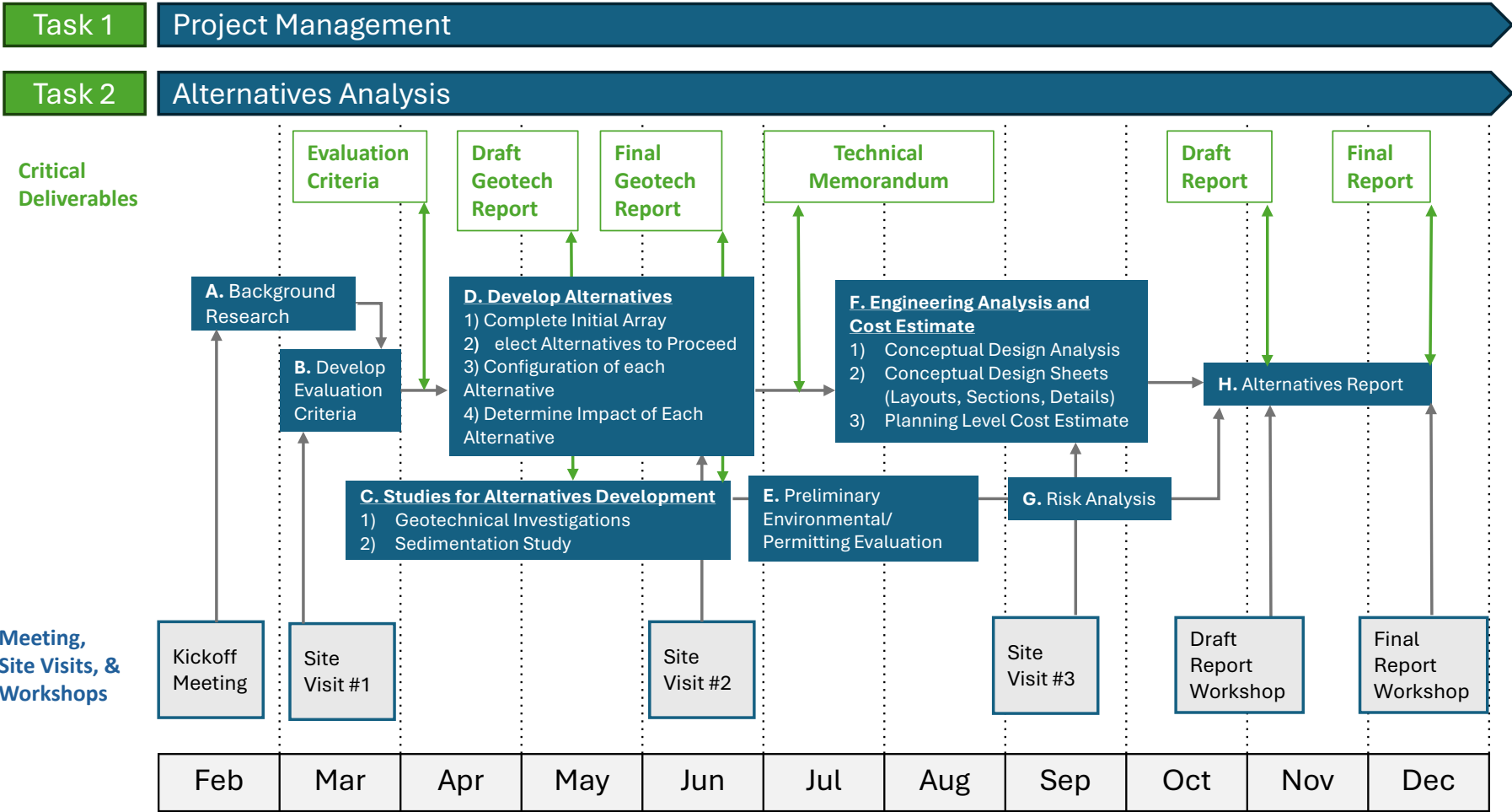
As such, there is a broad range of questions and potential solutions to apply. If not planned and managed with this in mind, the alternatives analysis has the potential to become overly complex or iterative in nature. On the other hand, if too many pre-decisional assumptions are made at the outset, or the alternatives analysis is too narrowly scoped, the alternatives analysis will not provide a defensible, actionable outcome. Rather, the outcome will be uncertain, and it likely will be accompanied by a recommendation for further study.

With these concerns in mind, we have configured our alternatives analysis workplan to start with a broad, encompassing view of the site and possible alternatives, then efficiently and defensibly narrow the study to a manageable, site-appropriate level of effort.

Section 1: Scope

Figure 1. below provides a roadmap of the scope/workplan, with some additional scope breakdown (additional relative to the RFP), establishes a path forward for the project team.

Figure 1. – Alternatives Analysis Roadmap to Key Milestones and Deliverables



Section 1: Scope

A description of each element of the scope follows below.

A. Background Research

Geosyntec is already familiar with Harding Canyon Dam and much of the existing technical information about the dam. We will perform focused review of this information for particular features and data that are salient to the alternatives analysis. In addition to characteristics of the dam and its immediate surrounding conditions, we will seek other information that will be important for the alternatives analysis, including:

- Information regarding the sediments that fill the former reservoir space (e.g., geologic/geotechnical characteristics of the watershed);
- Additional data and indicators of watershed topography, streamflows, and site hydraulics;
- Documentation of vegetative, biological, and other environmental characteristics of the former reservoir area;
- Information salient to site access routes, in consideration of potential construction traffic;
- Relevant land ownership and easement information, as well as site-use and other relevant agreements IRWD may have with other parties.

The site visit will be used in conjunction with these research efforts and the geotechnical investigation.

B. Develop Evaluation Criteria

We will develop draft alternatives evaluation criteria for IRWD review and comment. As mentioned in the RFP, the criteria will include constructability, environmental/permitting issues, construction costs, risk reduction, community impacts, and permitting. We will include other project risk factors, such as cost-increase risk, long-term performance reliability, DSOD/regulatory-change risk, etc. We also will include potential “opportunities” to consider as evaluation criteria, such as potential public relations benefits, potential for funding contribution by third parties, potential synergies with other IRWD projects, etc. We anticipate discussing with IRWD the value of maintaining the evaluation criteria as “draft” evaluation criteria until the project is further along (development of the alternatives commonly brings to light further insights regarding evaluation criteria).

C. Studies for Alternatives Development

The nature of the studies required is dependent in part on the alternatives to be developed and evaluated. For example, for an alternative that consists of stabilizing the existing dam by installing anchors through the dam into the foundation and abutments:

- An appropriate geotechnical investigation would involve borings/coring into the foundation and abutments, to characterize the ground conditions with respect to anchor installation and performance, as well as abutment performance under loaded-anchor conditions.
- A sedimentation study likely would not be required, because the hydraulics/sediment delivery paradigm would remain unchanged relative to existing conditions.

Section 1: Scope

On the other hand, if no alternative involving foundation/abutment anchors or similar is developed and evaluated, then performing borings/coring into the foundation and abutments likely is not needed, and doing so could be a poor use of funds.

In the workplan that we have developed, there is a “Studies-to-Perform” decision milestone immediately following scope item D.2. Develop Alternatives – Select Alternatives to Develop (described in the following section of this scope/workplan). Immediately following the selection of alternatives to develop, the studies to perform (geotechnical, sedimentation) are identified. The nature of those studies is dependent on which alternatives are selected for development and evaluation.

As described in the following section (D. Develop Alternatives), we will discuss various alternatives with IRWD and provide recommendations to IRWD about which alternatives should be developed and evaluated. We anticipate that there are certain alternatives that IRWD will want to have developed and evaluated, and there are various other alternatives that IRWD will not see value in having developed and evaluated. Based on this anticipation, we have developed the following scope for studies. This scope can be modified, if needed, based on which alternatives are actually selected and based on input or requests from IRWD.

1. Geotechnical Investigation

Based on our anticipation of the range of alternatives selected for development and evaluation, we anticipate a need for geotechnical investigation characterization of:

- Depth of sediments in the area upstream of the dam (immediately upstream and for a distance of about 100 feet);
- Geotechnical characteristics and stratigraphic variability of sediments in this area upstream of the dam (in consideration of liquefaction potential, dam loading, construction conditions, etc.);
- Geotechnical characteristics of the uppermost sediments within the watershed with potential to mobilize as flow-borne sediment or debris flows.
- Surface/near-surface characteristics of bedrock just downstream of the dam, at valley bottom and lower portions of slopes.

We do not anticipate the need for:

- Subsurface characteristics of the bedrock in the dam foundation or abutments;
- Subsurface characteristics of the bedrock downstream of the dam;
- Subsurface characteristics of the bedrock upstream of the dam.

These needs will be confirmed or revised upon selection of alternatives to be developed and evaluated. Considering these needs as likely to be confirmed, we have scoped the following elements for our geotechnical investigation.

- 1) Cone penetration tests (CPT) of sediments upstream of the dam. We will perform CPTs at 2 to 6 locations upstream of the dam, within about 100feet of the dam. We will avoid encroaching into the

Section 1: Scope

creek. In conjunction with the CPTs, we will collect samples of sediments from shallow pits (dug using hand-operated tools). Selected samples will be tested for geotechnical characteristics.

- 2) Reconnaissance/sampling of sediments on the sediment plain and further up the watershed. We will perform reconnaissance and surficial sampling of sediments at various locations on the sediment plain and further up the watershed in sediment source areas (subject to limitations of property access or encroachment). Selected samples will be tested for geotechnical characteristics.
- 3) Reconnaissance/mapping of bedrock just downstream of the dam. We will perform reconnaissance and geologic mapping at the valley bottom and lower portions of the adjacent slopes just downstream of the dam (within IRWD property).

The results of the CPTs, sampling, testing, and mapping will be presented in a geotechnical report (first submitted as a draft, then as final after review by IRWD).

2. Sedimentation Study (optional/if required)

Based on our anticipation of the range of alternatives selected for development and evaluation, we anticipate that an additional sedimentation study will not be required. We anticipate that the existing study will be sufficient for evaluation of the alternatives that are likely to be selected for development and evaluation.

D. Develop Alternatives

As mentioned above, we have configured our alternatives analysis workplan to start with a broad view of the site and possible alternatives, then narrow the study to a manageable, site-appropriate level of effort. This approach is intended to result in a defensible, actionable outcome. Additionally, this approach is effective in preventing significant schedule delays and cost overruns that commonly occur from reviewers or other interested parties making suggestions (e.g., “you should consider...”) that send the team back to a much earlier step in the alternatives analysis study. An important lesson learned from previous alternatives analysis projects is to include and document a broad initial array of alternatives; not doing so is a recipe for a derailed project.

Another important lesson learned from previous alternatives analysis projects is to find the right level of definition and differentiation for each alternative. Often, engineers will attempt to differentiate between alternatives with differing structural components that are intended to achieve the same purpose (e.g., a stranded-anchor wall vs a soil-nail wall). Usually, this is an overly narrow approach to alternatives analysis. This narrow approach limits the range of alternatives that can be considered (because there are so many permutations at this level of detail). Also, after an alternative is selected, this narrow approach severely constrains the project in design and construction (especially if the project is subject to an EIR or similar type of process), inhibiting ability to optimize or adjust for changed conditions or needs. Instead of this narrow approach, it usually is more beneficial to have greater distinction between alternatives, with the distinction being based on the output or intended purpose of the alternative. For example, for a landslide project, instead of defining two alternatives as two different types of walls to retain the landslide, one alternative might be a retaining wall and the other might be a landslide-removal earthwork project. If the wall is selected, the lack of narrow definition of wall type allows the designer flexibility to optimize and respond to new findings during the design process. The workplan we have developed allows IRWD to implement this type of approach (if IRWD chooses).

Section 1: Scope

1. Complete Initial Array

Our approach to the alternatives analysis starts with developing an initial array of potential alternatives that might be implemented at the site. As discussed above, it is prudent to start with a broad, encompassing view of the site and possible alternatives. With this in mind, we have generated a draft initial array of alternatives for the site. We have identified about two-dozen distinct approaches to the site, which we have organized into 10 alternatives (not counting the Do-Nothing alternative), with most alternatives having multiple variants of how to achieve the alternative. Our draft initial array of alternatives and their variants are defined in the attached Table 1. Initial Array of Alternatives.

The first step of our alternatives development process is to complete this initial array of alternatives. With input from IRWD, we will refine or add to this draft initial array of alternatives. The intent of the initial array is to include the full range of potential alternatives that might be postulated for the site – and to document that this wide range of potential alternatives was identified and considered as part of the process.

2. Select Alternatives to Develop

The next step is to select some subsets of the alternatives to be developed and evaluated. At first, with about two-dozen distinct approaches to the site, this seems like a challenging task. However, there is a rational and prudent means of identifying a shortlist of alternatives for development and evaluation. Review of the various approaches on the list, and consideration of the primary site features, suggests the following logic.

For the dam, it can be either remediated or removed. If it is remediated, the sediments remain retained. If the dam is removed, then either the sediments need to be kept in place via some other manner, or the sediments need to be modified such that they will not mobilize in an uncontrolled manner. Therefore, there are three general approaches to the site, defined by the combination of approach to the dam and approach to the sediments:

- 1) Keep the dam in place and remediate/stabilize the dam, and continue to retain the sediments via the dam.
- 2) Remove the dam, but continue to keep the sediments in place via some other mechanism that is designed and constructed for that purpose, e.g., a sediment retention structure (SRS).
- 3) Remove the dam, and modify/remove the sediments so that they will not mobilize in an uncontrolled manner in the future.

We believe it would be prudent for the alternatives analysis project for Harding Canyon Dam to develop and evaluate three alternatives, with each alternative representing one of the three general approaches outlined above. That is, the scope of the alternatives analysis would include development and evaluation of:

- A “keep dam & keep sediments” alternative
- A “remove dam & keep sediments” alternative
- A “remove dam & modify sediments” alternative

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There are several reasons for pursuing this process, including:

- This is a technically sound and defensible approach, especially in conjunction with the broad Initial Array of Alternatives and the rationale described herein for honing down the array based on the key components at the site (i.e., the dam and the retained sediments).
- Defining three alternatives in this manner creates a clear distinction with respect to evaluation of potential environmental impact and the alternatives process associated with environmental impact.
- Defining three alternatives in this manner creates a clear distinction between the approaches for IRWD to consider and choose between.
- With the alternatives defined in this manner, greater flexibility is available later (during design) to refine and optimize the selected alternative and yet to still be considered the same alternative that was selected.

Regardless of whether IRWD chooses this recommendation for this particular strategic approach for selecting three alternatives to develop and evaluate, this step of the process involves selecting which alternatives will be developed and evaluated.

As indicated previously, immediately following selection of alternatives to develop and evaluate, decisions can/will be made about the nature of studies to be performed (geotechnical investigation, sedimentation study). This represents the “Studies-to-Perform” decision milestone.

Based on our understanding of the site and of IRWD’s objectives for the project, we have performed an initial evaluation of the alternatives and their variants. Table 1., Initial Array of Alternatives, includes summaries of each. For each alternative, the apparent preferred variant of the alternative is identified, with the evaluation and rationale for the selection.

Using this process, we narrowed down an initial list of about two-dozen approaches to an array of nine alternatives. While it is prudent to be comprehensive in a feasibility-level alternatives analysis project (by considering, at least initially, a full range of possible approaches), it is uneconomical and generally not of value to thoroughly evaluate a relatively large number of alternatives. As nine is a relatively large number of alternatives we continued to compare and evaluate the initial array of alternatives to narrow down the list and develop a shortlist of alternatives for further evaluation.

In reviewing the Initial Array of Alternatives and the evaluations of the alternatives, we believe (based on our current understanding of IRWD’s objectives) that the three alternatives that should be carried forward for further evaluation (i.e., the alternatives that will ultimately make the shortlist) are:

- Alternative 1A: Dam Remediation – Expand Mass Downstream
- Alternative 2B: New SRS at Dam Site – Rock-filled Gabions SRS
- Alternative 6B: Dam Removal with New Configuration of Sediments – Relocate Sediments On-site

Alternative 1A represents the “keep dam & keep sediments” alternative. Alternative 2B represents the “remove dam & keep sediments” alternative. Alternative 6B represents the “remove dam & modify sediments” alternative.

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We will review with IRWD our evaluations of each alternative and each variant in the Initial Array of Alternatives, and our rationale for identifying the 6B shortlist alternatives. Of course, we look forward to receiving feedback from IRWD on our rationale and to understanding how IRWD views the alternatives, and which alternatives IRWD believes should be carried forward for further evaluation.

The conclusion of this step of the process is concurrence on which alternatives will be carried forward for development and evaluation (i.e., the shortlist alternatives).

3. Develop Configuration of Each Alternative

After selection of the alternatives to be carried forward for development and evaluation, we will begin developing the selected (i.e., shortlist) alternatives. We will develop layout sketches, cross-section sketches, and text narratives to describe each alternative. We will include key characteristics, primary features, and approximate principal dimensions. The narrative for each alternative will describe how the alternative addresses the six risk-driving PFMs.

4. Determine Impacts of Each Alternative

Using the developed configuration of each alternative, we will characterize non-technical impacts of each alternative, including community impacts, environmental impacts, and permitting required.

5. Technical Memorandum

Using the developed configurations, we will develop a budget-level cost estimate for each of the shortlist alternatives. We will prepare and submit a Technical Memorandum describing the developed alternatives, various impacts, and budget level cost estimates.

E. Preliminary Environmental/Permitting Evaluation

We will evaluate the environmental and permitting requirement for the shortlist alternatives to be evaluated, including timeframes and costs for approval. Where relevant we will preliminarily identify and evaluate environmental mitigations at a conceptual level.

F. Engineering Analysis and Cost Estimate

Conceptual-level-design development is needed to sufficiently estimate costs, identify impacts, consider project cost/schedule risks, communicate with others and support next-phase project planning.

1. Conceptual-level-design analyses

We will perform analyses needed to develop conceptual-level designs. Analyses will be performed to establish the need (or lack of need) for key project features and to identify principal dimensions of key project features. Analyses will be performed to support confirmation of sufficiently addressing the six risk-driving PFMs.

2. Conceptual-level-design layouts, plans, and cross-sections

Based on the developed configurations and conceptual-level-design analyses, we will prepare conceptual-level-design layouts, plans, and cross-sections. We anticipate design drawing sheet sets for each of up to three selected alternatives for evaluation would include the following:

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Table 2. – Anticipated Conceptual Level Drawing Sheets (Per Selected Alternative, up to 15 sheets total)

Sheet No.	Drawing No.	Sheet Title
1	A – C101	Alt A Site Plan – Overview
2	A – C102	Alt A Site Plan – Harding Canyon Dam Area
3	A – C103	Alt A Profile Section – Upstream to Downstream
4	A – C104	Alt A Cross Section – Elevation View
5	A – C105	Alt A Miscellaneous Details
6	B – C101	Alt B Site Plan – Overview
7	B – C102	Alt B Site Plan – Harding Canyon Dam Area
8	B – C103	Alt B Profile Section – Upstream to Downstream
9	B – C104	Alt B Cross Section – Elevation View
10	B – C105	Alt B Miscellaneous Details
11	C – C101	Alt C Site Plan – Overview
12	C – C102	Alt C Site Plan – Harding Canyon Dam Area
13	C – C103	Alt C Profile Section – Upstream to Downstream
14	C – C104	Alt C Cross Section – Elevation View
15	C – C105	Alt C Miscellaneous Details

Conceptual drawings will be developed in AutoCAD Civil3D using IRWD CAD drafting standards, with formatting suitable for electronic submittal and incorporation into the Alternatives Analysis Report. The level of detail will be sufficient to communicate intent, constructability considerations, and major interfaces, while maintaining flexibility for refinement during subsequent design phases.

3. Planning level cost estimates

For each alternative, we will develop a planning level cost estimate. Cost estimates will include explicit estimates of initial construction costs. For each alternative, a qualitative discussion of future costs (e.g., maintenance costs) will be prepared. A formal life-cycle cost analysis (LCCA) is not included in the scope.

G. Risk Analysis (optional/if required)

Whether or not a risk analysis is required (or is of value) is dependent in part on the alternatives to be developed and evaluated. For example, if IRWD wishes to consider an alternative that keeps the dam largely in its current form, then performing an update of the risk analysis would be recommended. However, if the alternatives selected for development and evaluation all clearly address or remove the six risk-driving PFMs (and do not create new dam safety PFMs), then performing an update of the risk analysis is likely not of much value and would not be recommended. Based on our anticipation of the range of alternatives selected for development and evaluation, we anticipate that an update of the risk analysis will not be required. We anticipate that the existing risk analysis will be sufficient for evaluation of the alternatives that are likely to be selected for development and evaluation.

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H. Alternatives Report

We will prepare and submit an alternatives analysis report, first as a draft, then as a final report after IRWD review and comment. The report will include:

- A description of the alternatives analysis process;
- The alternatives evaluation criteria;
- Initial array of alternatives;
- Rationale for shortlist of alternatives;
- Development of the shortlist alternatives;
- Summary of the geotechnical report;
- Summary of the sedimentation study (if performed);
- Engineering analysis;
- Conceptual layouts;
- Cost estimates; and
- Community impacts, environmental impacts, and permitting.

If an updated risk analysis is ultimately performed, the risk analysis either can be included in the alternatives analysis report or can be presented in a separate risk analysis report (in accordance with IRWD preference).

Table 1. Initial Array of Alternatives

Alternative				Notes	
Number		Short Name	Description	Evaluation Notes	Comparison of Variants within Alternative
1		Dam Remediation	Keep the existing dam in place and reinforce/stabilize/remediate the existing dam and keep the existing sediments in place (the sediments continue to be retained by the dam).	Dam conditions/PFMs necessitate remediation of the dam structurally, and with respect to displacement, due to both seismic and hydraulic/debris flow loading conditions.	
	1A	Dam Remediation - Expand Mass Downstream	Expand mass of dam to downstream side, adding anchors, drainage, etc., as needed.	Intent is to convert the dam into purely a gravity dam (not relying on the arching-effect contribution of the existing dam). Likely relatively easy construction, excepting (a) probably no access from the downstream side, so all materials, equipment, and labor must be deployed down from top of dam, and (b) control of water (surface and subsurface) challenging if work not all performed/completed within dry season. Designing for drainage for water seeping through the existing dam may be challenging. However, stabilization of the dam and remediation of the various PFMs is readily achievable through straightforward design-and-construction methods (buttressing with mass concrete); no particularly clever or special design and construction details needed.	Among the Alternative 1 variants, Alternative 1A appears to be the preferred approach, considering that the effectiveness and/or reliability of either of the other two approaches would remain in question, with Alternative 1C likely to be considered as not even addressing key issues for the dam and so ruled-out entirely. The construction of Alternative 1A is more straightforward and readily manageable than Alternative 1B, with the exception that equipment, materials, and personnel need to be deployed down from the top of the dam. Alternative 1A is the most intuitive and readily design-able and approvable (from a technical standpoint), resulting in a remediated condition that would be considered to have high confidence of dam stability (with PFMs being remediated).
	1B	Dam Remediation - Expand Mass Upstream	Expand mass of dam to upstream side, adding anchors, drainage, etc., as needed.	On upstream side, can convert dam to purely a gravity dam or also still leverage the arching effect. Construction somewhat challenging because needs to be done down within excavation on upstream side of dam, confined on other three sides by earthen slopes. Control of water (surface and subsurface) critical; must be completed during dry season. Structural stabilization of dam very challenging, since on upstream side, relying on tying into dam in tension (as opposed to buttressing approach when on downstream side) with highly degraded concrete throughout the dam; as a result, ultimately, the reliability of the remediation of the dam likely would remain in question. Probably non-standard design-and-construction details would be needed.	
	1C	Dam Remediation - In-situ Ground Improvement	Perform in-situ ground improvement (e.g., vibro-compaction, cement deep soil mixing, etc.) on upstream side of dam and improve drainage through the dam (to decrease loading on dam, so that major modifications to the dam are not needed).	Ground improvement construction likely not too challenging, excepting that mobilization of large ground improvement equipment (and materials) would be challenging due to the sole access route to the site being a combination of (a) a narrow, winding, low-overhead public road that leads to the site access road, and (b) a narrow, winding, steep, unpaved site access road (i.e., the fire road/trail). The effectiveness of ground improvement to alleviate concerns about the dam likely would remain in question, considering that (a) ground improvement probably cannot be performed very close to the dam, due to likely damage to the existing subsurface drainage system and also concerns about potentially causing displacement of the dam due to ground improvement operations, and (b) some of the existing PFMs are not addressed by performing ground improvement (e.g., structural deficiencies). Improved drainage through the dam would help alleviate loading immediately upstream of the dam (zone that remains otherwise unimproved or less improved by the ground improvement operations). Reliability of the drainage, especially over the long-term may be questionable.	

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2	New SRS at Dam Site		Completely remove (or significantly lower) the existing dam and replace it (or envelop it) with a new sediment-retaining “structure” of the same height as the existing dam and located at the same location (nominally) as the existing dam, and keep the existing sediments in place (the sediments continue to be retained by the sediment-retaining structure).	The concept of the sediment-retaining structure (SRS) approach is the achievement of continuing to retain the existing sediments in place, coupled with the recognition that the existing dam (performing the sediment-retention function) is in very poor condition and instead of trying to salvage the existing dam it may make more sense to remove it and replace it with a new structure to retain the sediments. Although there is probably no access from the downstream side, construction will involve both dam lowering/removal and excavation of some sediments on the upstream side of the dam, so construction access/work from the upstream side probably not particularly challenging.	
	2A	New SRS at Dam Site - Concrete SRS	Completely remove dam and replace it with a concrete SRS, adding anchors, drainage, etc., as needed.	Reconstruction of a concrete SRS (which would be designed largely like a concrete gravity dam) should be fairly straightforward (technically). The site is largely conducive to a concrete SRS, from a topographic and geologic standpoint, excepting potential concern about a potential fault through the site (although this structure is an SRS and not a water-reservoir-impounding dam). The constructed SRS would have high reliability for performance (e.g., highly resistant nickpoint) and confident resolution of PFMs. It does maintain the condition of a hard, engineered, concrete structure retaining the sediments, with the need for distinct engineered drainage systems to continue to function as-designed over the (long) life of the project, which may necessitate maintenance and periodic rehabilitation. There might be concerns about replacing the existing concrete gravity dam with something that looks just like a concrete gravity dam.	Among the Alternative 2 variants, Alternative 2B appears to be the preferred approach. The rock-filled gabions are readily designable and constructable, are relatively adaptable to site conditions, are accommodating of variations in subsurface seepage/drainage conditions and the potential fault, are efficient from a construction standpoint, and would be expected to have good performance if designed well and constructed with tight quality control. Rock-filled gabions have elements of engineering design and construction efficiency and effectiveness, while also leveraging site materials and accommodating natural site conditions for flows and potential debris flows. A significant concern with rock-filled gabions is long-term performance due to corrosion of the gabion baskets. The ability to design a configuration that accommodates long-term corrosion (i.e. and have the overall structure still perform as intended) is the key uncertainty to be resolved for evaluation.
	2B	New SRS at Dam Site - Rock-filled Gabions SRS	Completely remove dam and replace it with a rock-filled-gabions SRS.	Design and construction of a rock-filled gabions SRS wouldn't be totally straightforward, but wouldn't be particularly challenging either. Rock-filled gabions have some flexibility, so the potential fault would not be a concern. Rock-filled gabions can readily accommodate a range of subsurface seepage/drainage conditions. Rock-filled gabions also can accommodate a range of surface flows and debris flows. Rock-filled gabions would be efficient with respect to using on-site materials, with limited importing of construction materials. A rock-filled-gabions SRS would need to have a sloping downstream face/channel, i.e., steps comprising an overall slope. Design and construction of stepped gabions is relatively easily adjusted/adaptable. Performance/reliability record of gabion structures is mixed - quality of construction is critical for good and enduring performance/reliability. A key concern for longevity of gabions is corrosion of the steel and resultant failures of portions of the gabion mesh over time, with corrosion and failure of the mesh being potentially widespread. Overall performance of the structure depends in turn on the application and design (e.g., grading of rock filling the gabions). A rock-filled gabions SRS would remove the existing PFMs, though would introduce a few new PFMs, which would be anticipated to be of low risk.	

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2C	New SRS at Dam Site - Earthen Embankment SRS	Completely remove dam and replace it with an earthen embankment SRS, adding reinforcement, drainage, etc., as needed; establish an armored grade-drop down the downstream face of the embankment.	Design and construction of an earthen embankment SRS would be a little challenging (but not significantly challenging), due to (a) zoning of filter and drain layers for conveyance of subsurface drainage (like for an earthen embankment dam), and (b) zoning of surface-armoring and associated bedding layers for conveyance of surface drainage and debris flows. An earthen embankment SRS with filter/drain zones would have some flexibility, so the potential fault would not be a concern. Surface flows and (especially) debris flows would necessitate tight control on design and construction, and likely necessitate flatter slopes and larger armoring rock than initially might be anticipated. Performance/reliability record is not great for non-gently-sloped armored slopes (i.e., non-grouted rock armoring structures) with water and/or debris flows passing over. An earthen embankment SRS with armored grade-drop would remove the existing PFMs, though would introduce a quite a few new PFMs, with resultant risk being uncertain.	
2D	New SRS at Dam Site - Envelope Partially Lowered Dam with Earthen Embankment	Significantly lower dam (e.g., halfway) and envelop it within an earthen embankment SRS, adding reinforcement, drainage, etc., as needed; establish an armored grade-drop down the downstream face of the embankment.	Similar assessment as for Alt 2C, except Alt 2D would be more challenging to design and construct, due to remaining presence of lower portion of existing concrete dam being in way of new filter/drain zones and construction activities. Does reduce the demolished concrete materials volume that needs to be disposed of.	

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3	New SRS Downstream	Keep the existing dam in place and construct a new sediment-retaining “structure” of equal or lower height (than the existing dam) located a ways downstream of the existing dam, and then either allow the space upstream of the new structure (i.e., the area between the existing dam and the new sediment-retaining structure) to fill in with sediments, or, by using some of the existing sediments as borrow, place fill this space up to the height of the new sediment retaining structure; and keep the existing sediments in place (the sediments continue to be retained by the dam), excepting those sediments used as borrow to fill between the dam and the new sediment retaining structure.	The concept of the sediment-retaining structure (SRS) approach is the achievement of continuing to retain the existing sediments in place, coupled with the recognition that the existing dam (performing the sediment-retention function) is in very poor condition and cannot be relied upon to continue to perform this function as-is/on its own. For this Alternative (Alt 3), instead of removing and replacing the dam with a new structure to retain the sediments, a new SRS is located a ways downstream, to retain sediments (either allowed to backfill this space or placed as fill) in the area between the SRS and the existing dam, to buttress the existing dam via the sediments filling the space on the downstream side of the existing dam. Whether to allow sediments to fill the space naturally or to place sediment materials as fill would depend on various factors. Likely, after analysis and evaluation, it would be concluded that sediment backfill should be placed, not allowed to backfill naturally. This distinction is a refinement of the Alternative and does not need to be set in order to evaluate the Alternative (this refinement is readily switchable later). Similarly, the height of the structure would depend on various factors, and does not need to be set in order to evaluate the Alternative (although the height does affect each variant of the Alternative differently, per below). Construction would be challenging, considering (a) IRWD property extends only 100 feet downstream of the existing dam, making for a very constrained area in which to do construction, (b) probably no access from the downstream side, so all materials, equipment, and labor must be deployed down from top of dam, and (c) control of water (surface and subsurface) challenging if work not all performed/completed within dry season.	
3A	New SRS Downstream - Concrete SRS	Keep the dam and supplement it at downstream location with a concrete SRS, adding anchors, drainage, etc., as needed.	Construction of a concrete SRS (which would be designed largely like a concrete gravity dam) would be somewhat challenging due to the constrained area within the work must be performed. The abutments downstream of the existing dam likely are less conducive to a concrete SRS than the existing dam site, from a topographic and geologic standpoint. With sufficient design and construction, the constructed SRS would have high reliability for performance (e.g., highly resistant nickpoint). If height of SRS equal to existing dam, with space between the SRS and the existing dam filled to the height of the existing dam (once backfill of the space is achieved to that level), likely confident resolution of PFMs for the existing dam. If the height of the new SRS and ultimate level of the backfill (equal to height of the SRS) is lower than the height of the existing dam, likely there would remain concern about some of the existing PFMs. Alt 3A does maintain the condition of a hard, engineered, concrete structure retaining the sediments, with the need for distinct engineered drainage systems to continue to function as-designed over the (long) life of the project, which may necessitate maintenance and periodic rehabilitation. Some new PFMs would be introduced (associated with the SRS/backfill), which would be anticipated to be of low risk if sufficiently designed and constructed. There might be concerns about adding (in addition to the existing concrete gravity dam) another structure that looks just like a concrete gravity dam.	Among the Alternative 3 variants, Alternative 3A appears to be the preferred approach. The viability of a rock-filled-gabions SRS is questionable, and an earthen embankment SRS does not appear to be viable at all. The concrete SRS would be challenging, but it is the only variant within this Alternative that is unlikely to have high risk with respect to viability of the approach.

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	3B	New SRS Downstream - Rock-filled Gabions SRS	Keep the dam and supplement it at downstream location with a rock-filled-gabions SRS.	If construction is limited to remaining on IRWD property, which extends only 100 feet downstream of the dam, a rock-filled-gabions SRS could not be constructed up to a height equal to that of the existing dam (considering hydraulics/debris-loading constraints to maximum slopes of a gabion structure with over-flow conditions), but probably would be limited to less than or about half the height of the existing dam. This would leave the upper half of the existing dam unbuttressed on the downstream side, and likely would be considered insufficient in addressing multiple of the existing PFMs.	
	3C	New SRS Downstream - Earthen Embankment SRS	Keep the dam and supplement it at downstream location with an earthen embankment SRS, adding reinforcement, drainage, etc., as needed; establish an armored grade-drop down the downstream face of the embankment.	If construction is limited to remaining on IRWD property, which extends only 100 feet downstream of the dam, an earthen embankment SRS could not be constructed within this space. The design would not be a separate SRS (separate from the existing dam); configurations that modify the existing dam, replace the existing dam with an SRS, or incorporate the existing dam into an SRS are covered by other Alternatives.	
4		New SRS Upstream	Completely remove the existing dam and replace it with a new sediment-retaining “structure” of the same height (nominally) as the existing dam but located a ways further upstream of the existing dam, and remove-and-relocate the sediments from between the existing dam site and the new sediment-retaining structure and keep the existing sediments in place upstream of the new sediment-retaining structure; removed existing sediments to be relocated somewhere upstream on top of existing sediments and/or partially onto adjacent native ground (with stabilization measures for the relocated materials).	The concept of the sediment-retaining structure (SRS) approach is the achievement of continuing to retain the existing sediments in place, coupled with the recognition that the existing dam (performing the sediment-retention function) is in very poor condition and instead of trying to salvage the existing dam it may make more sense to remove it and replace it with a new structure to retain the sediments. In this Alternative, the new SRS is located a ways upstream, to allow for (a) a gentle slope of the downstream face/grade drop (if needed) of the SRS, considering that at the existing dam there is only 100 feet of IRWD property downstream of the existing dam, and (b) more area downstream of the SRS (but upstream of the property line) for sediment accumulation downstream of the SRS without extending beyond IRWD property.	
	4A	New SRS Upstream - Concrete SRS	Completely remove dam and replace it at upstream location with a concrete SRS, adding anchors, drainage, etc., as needed.	Reconstruction of a concrete SRS (which would be designed largely like a concrete gravity dam) should be fairly straightforward (technically). The site is largely conducive to a concrete SRS, from a topographic and geologic standpoint. The constructed SRS would have high reliability for performance (e.g., highly resistant nickpoint) and confident resolution of PFMs. It does maintain the condition of a hard, engineered, concrete structure retaining the sediments, with the need for distinct engineered drainage systems to continue to function as-designed over the (long) life of the project, which may necessitate maintenance and periodic rehabilitation. There might be concerns about replacing the existing concrete gravity dam with something that looks just like a concrete gravity dam.	Among the Alternative 4 variants, Alternative 4B appears to be the preferred approach. The rock-filled gabions are readily designable and constructable, are relatively adaptable to site conditions, are accommodating of variations in subsurface seepage/drainage conditions, are efficient from a construction standpoint, and would be expected to have good performance/reliability if

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	4B	New SRS Upstream - Rock-filled Gabions SRS	Completely remove dam and replace it at upstream location with a rock-filled-gabions SRS.	Design and construction of a rock-filled gabions SRS wouldn't be totally straightforward, but wouldn't be particularly challenging either. Rock-filled gabions can readily accommodate a range of subsurface seepage/drainage conditions. Rock-filled gabions also can accommodate a range of surface flows and debris flows. Rock-filled gabions would be efficient with respect to using on-site materials, with limited importing of construction materials. A rock-filled-gabions SRS would need to have a sloping downstream face/channel, i.e., steps comprising an overall slope. Design and construction of stepped gabions is relatively easily adjusted/adaptable. Performance/reliability record of gabion structures is mixed - quality of construction is critical for good and enduring performance/reliability. A rock-filled gabions SRS would remove the existing PFMs, though would introduce a few new PFMs, which would be anticipated to be of low risk.	designed well and constructed with tight quality control. Rock-filled gabions have elements of engineering design and construction efficiency and effectiveness, while also leveraging site materials and accommodating natural site conditions for flows and potential debris flows.
	4C	New SRS Upstream - Earthen Embankment SRS	Completely remove dam and replace it at upstream location with an earthen embankment SRS, adding reinforcement, drainage, etc., as needed; establish an armored grade-drop down the downstream face of the embankment.	Design and construction of an earthen embankment SRS would be a little challenging (but not significantly challenging), due to (a) zoning of filter and drain layers for conveyance of subsurface drainage (like for an earthen embankment dam), and (b) zoning of surface-armoring and associated bedding layers for conveyance of surface drainage and debris flows. Surface flows and (especially) debris flows would necessitate tight control on design and construction, and likely necessitate flatter slopes and larger armoring rock than initially might be anticipated. Performance/reliability record is not great for non-gently-sloped armored slopes (i.e., non-grouted rock armoring structures) with water and/or debris flows passing over; the upstream site would accommodate a more gentle slope (the existing dam site would not readily accommodate a gentle slope). An earthen embankment SRS with armored grade-drop would remove the existing PFMs, though would introduce a quite a few new PFMs, with resultant risk being uncertain.	

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5	Dam Removal with New Grade Drop		Completely remove or significantly lower the existing dam, and slope-back and stabilize in-place the exposed sediments and establish an armored grade-drop (remove-and-relocate the minimum viable amount of the exposed sediments), leaving the vast majority of the existing sediments in place upstream of the dam site; removed sediments to be relocated somewhere upstream on top of existing sediments and/or partially onto adjacent native ground (with stabilization measures for the relocated materials).	The concept of the "grade drop" approach is the achievement of continuing to have the existing sediments remain in place, but without having to keep the dam to retain them or having to construct a new SRS to retain them, and instead rely on the sediments to keep themselves in place by having the downstream end of unretained sediments be sloped at a stable angle and armored on top of the slope. So, there is a change in grade (a drop in grade) from the top of the sediments (the sediment plain) down to the native valley floor and stream grade. The grade drop needs to be stable with respect to the subsurface geotechnical/seepage conditions of the sediments, and also stable with respect to resistance to erosion and downcutting due to water and debris flowing over the surface (which are likely to cause significant tractive forces and loading conditions). For stabilization of subgrade conditions, this Alternative includes measures like compaction of the exposed sediments and installation of subdrains into the sediments; it does not include significant in-situ ground improvement efforts (e.g., injection grouting, vibro-compaction, cement deep soil mixing, etc.). What comprises a stable slope depends also on the overlying armoring system (e.g., rock-filled gabions, riprap armoring) loading and level of protection. The slope of the grade drop is likely to be governed by the relationship between the armoring system and the hydraulic/debris flow loading demands, likely necessitating a gently sloping grade (e.g., flatter than 4H:1V).	
	5A	Dam Removal with New Grade Drop - Completely Remove Dam	Completely remove dam, and slope-back and stabilize in-place the exposed sediments and establish an armored grade-drop (of riprap over bedding zones, or of rock-filled gabions).	Complete removal of the dam results in a vertical difference of more than 40 feet from the top of the sediments (the sediment plain) down to the native valley floor and stream grade (and further exacerbated by a gently sloping sediment plain surface), resulting in a grade drop that will exceed 200 feet in plan-view length (and corresponding volume of sediment excavation), and possibly much greater, depending on the robustness of the armoring system and its ability to withstand hydraulic/debris flow loading, and sustain that performance over time. To remain stable and effective over time, the armoring system must remain robust and intact. Deformation of the underlying sediments (e.g., differential settlement) may be a concern for reliability of the armoring system remaining fully intact.	Among the Alternative 5 variants, Alternative 5A appears to be the preferred approach. Although Alternative 5A involves much more earthwork and subsurface stabilization and surface/grade-drop armoring than Alternative 5B, the effectiveness and reliability of Alternative 5B is highly questionable relative to Alternative 5A, and may not meet project objectives relative to addressing dam PFMs.
	5B	Dam Removal with New Grade Drop - Partially Remove Dam	Significantly lower dam (e.g., half way), and slope-back and stabilize in-place the exposed sediments and establish an armored grade-drop (of riprap over bedding zones, or of rock-filled gabions), adding anchors, drainage, etc., as needed to remaining portion of dam.	Significant lowering of the dam, but without complete removal, shortens the overall length of the necessary grade drop (and excavation volume) needed to cover the elevation change from the top of the sediments (the sediment plain) down to the valley floor and stream grade. Maintaining some portion of the dam also retains a form of nickpoint at this location; however, the effect of the nickpoint is mostly nullified, as the initiation of headcutting and debris generation is controlled by the sustained integrity of the armoring system overlying the sediments. Keeping the lower portion of the dam retains some of the dam deficiencies and does not address certain PFMs.	

Section 1: Scope

6	Dam Removal with New Configuration of Sediments	Completely remove the existing dam, and re-grade/channelize/stabilize the sediments across their entirety (nominally), including remove-and-relocate a relatively large volume of the sediments in order to achieve the re-configuration of the sediments; removed sediments to be hauled off site or relocated on top of existing sediments and/or partially onto adjacent native ground as part of the re-configuration of the sediments.	This Alternative not only would remove the dam, but also would alter the volume of sediments significantly, to establish a new flow regime at a lower elevation, i.e., the condition of concentrated streams of water flowing across the top of the sediment plain would be removed. Instead, excavated channels through the sediments would create physical routes for streamflows to pass through, leaving most of the volume of the sediments in place between the channels (at higher elevations). The channels would be stabilized/armored to establish enduring stream channels and a new, stable flow regime through the area of the sediments and through to the dam site. Volume of excavated sediments likely to be on the order of 20,000 cubic yards (20 KCY).	
6A	Dam Removal with New Configuration of Sediments - Off-haul Sediments	Remove dam, re-grade/channelize/stabilize sediments; removed sediments to be hauled off site.	The public streets route to the site includes the narrow, winding road through the Modjeska Canyon community/neighborhood, and the access road into and back out of the site is a steep, winding, dirt road; hauling earthen materials will likely necessitate/be limited to dump trucks with a capacity of about 4 CY per truck. So, to off-haul the excavated sediments would require on the order of 5,000 dump-truck trips in and then back out of the site and through the community.	Among the Alternative 6 variants, Alternative 6B appears to be the preferred approach. It is likely to be unacceptable, or at least very undesirable, to route on the order of 5,000 dump truck trips in and then back out through the Modjeska Canyon community/neighborhood. Additionally, off-hauled material would need to be "disposed of", for additional cost.
6B	Dam Removal with New Configuration of Sediments - Relocate Sediments On-site	Remove dam, re-grade/channelize/stabilize sediments; removed sediments to be relocated on top of existing sediments and/or partially onto adjacent native ground as part of the re-configuration of the sediments.	It may be challenging to relocate all excavated sediments to areas that are solely on top of the existing sediments (on the sediment plain) without extending onto adjacent native ground.	
7	Dam Removal and Adaptive Management	Completely remove the existing dam, and re-grade/channelize the sediments over their length, including remove-and-relocate a relatively large volume of the sediments in order to achieve the re-configuration of the sediments, and monitor sediment movement patterns over time to inform additional modifications to implement over time; removed sediments to be hauled off site or relocated on top of existing sediments and/or partially onto adjacent native ground as part of the re-configuration of the sediments.	This Alternative would remove the dam and also would alter the volume of sediments significantly, to establish a new flow regime at a lower elevation, i.e., the condition of concentrated streams of water flowing across the top of the sediment plain would be removed. Instead, excavated channels through the sediments would create physical routes for streamflows to pass through, leaving most of the volume of the sediments in place between the channels (at higher elevations). In this Alternative, the channels that are excavated would not be significantly engineered or armored. Instead, the channels would be established as "initial" configurations, likely to morph over time. Instead of attempting to control the ultimate locations/routes/configurations of the channels, the approach with this Alternative it to allow the site to evolve and let nature determine the ultimate configuration of the channels through the area of the sediments to the dam site. The volume of excavated sediments is likely to be on the order of 15,000 cubic yards (15 KCY). After the initial excavation, additional removal of some sediments along the channels would be anticipated to occur (as the system evolves). The continued evolution of the site would be monitored, and additional site modifications (e.g., additional excavation, areas of armoring construction, etc.) may be performed.	

Section 1: Scope

	7A	Dam Removal and Adaptive Management - Off-haul Sediments	Remove dam, re-grade/channelize sediments, and monitor and modify over time; removed sediments to be hauled off site.	The public streets route to the site includes the narrow, winding road through the Modjeska Canyon community/neighborhood, and the access road into and back out of the site is a steep, winding, dirt road; hauling earthen materials will likely necessitate/be limited to dump trucks with a capacity of about 4 CY per truck. So, to off-haul the excavated sediments would require on the order of 3,800 dump-truck trips in and then back out of the site and through the community.	Among the Alternative 7 variants, Alternative 7B appears to be the preferred approach. It is likely to be unacceptable, or at least very undesirable, to route on the order of 3,800 dump truck trips in and then back out through the Modjeska Canyon community/neighborhood. Additionally, off-hauled material would need to be "disposed of", for additional cost.
	7B	Dam Removal and Adaptive Management - Relocate Sediments On-site	Remove dam, re-grade/channelize sediments, and monitor and modify over time; removed sediments to be relocated on top of existing sediments and/or partially onto adjacent native ground as part of the re-configuration of the sediments.	It may be challenging to relocate all excavated sediments to areas that are solely on top of the existing sediments (on the sediment plain) without extending onto adjacent native ground.	
8	Dam Removal and Mechanical Removal of the Sediments	Completely remove the existing dam and remove-and-relocate all the sediments (nominally all) to re-establish original topography throughout the former reservoir area; removed sediments to be hauled off site.	The intent of this Alternative is to remove through this construction project both the dam and all (nominally) of the sediments that have deposited into the reservoir area, to roughly re-establish the topography of the canyon that existed at the time of the original dam/reservoir construction. The volume of excavated sediments is likely to exceed 30 KCY, corresponding to more than 7,500 dump-truck trips in and then back out of the site and through the community.		
9	Dam Removal and Natural Evacuation of the Sediments	Completely remove the existing dam in staged increments over time, and allow the exposed sediments to evacuate naturally during each increment of dam-lowering.	The intent of this Alternative is to remove the dam via construction activities, and to allow natural flows to remove the sediments (as opposed to removing the sediments via excavation). The dam would be lowered in increments (e.g., 4 vertical feet of lowering at a time) so as to not expose too much of the retained sediments at a single point in time, to reduce the risk of large volumes of sediment and debris being evacuated in a single event and causing significant problems downstream. After an increment of dam lowering, the site is allowed to respond geomorphically for a period of time, with natural flows eroding the sediment plain and removing the sediments, flushing them over the lowered dam crest and onward downstream. When the site has somewhat stabilized (i.e., further downcutting and removal of sediments from the sediment plain becomes minimal), the next increment of dam-lowering is performed. This iterative dam-lowering and then waiting (to allow sediment evacuation) is performed until the dam is completely removed. The total duration of this approach depends on the number of lowering iterations (i.e., how much lowering can be performed in each increment of lowering) and on the rate of sediment evacuation via natural flows at each increment. For example, if each increment of lowering was approximately 4 feet of dam removal, and the sediments evacuated all the way to next incremental elevation over the winter at every increment, then the project would take approximately a decade to perform.		
10	Ownership Transfer	Site ownership transfer solution that does not involve IRWD directing and owning site modifications (and is not the Do-Nothing Alternative).	Assumption: Further characterization of the Ownership Transfer Alternative will not be within our scope (e.g., no evaluation of real estate market/prospective buyers, no anticipation of property value, etc.).		

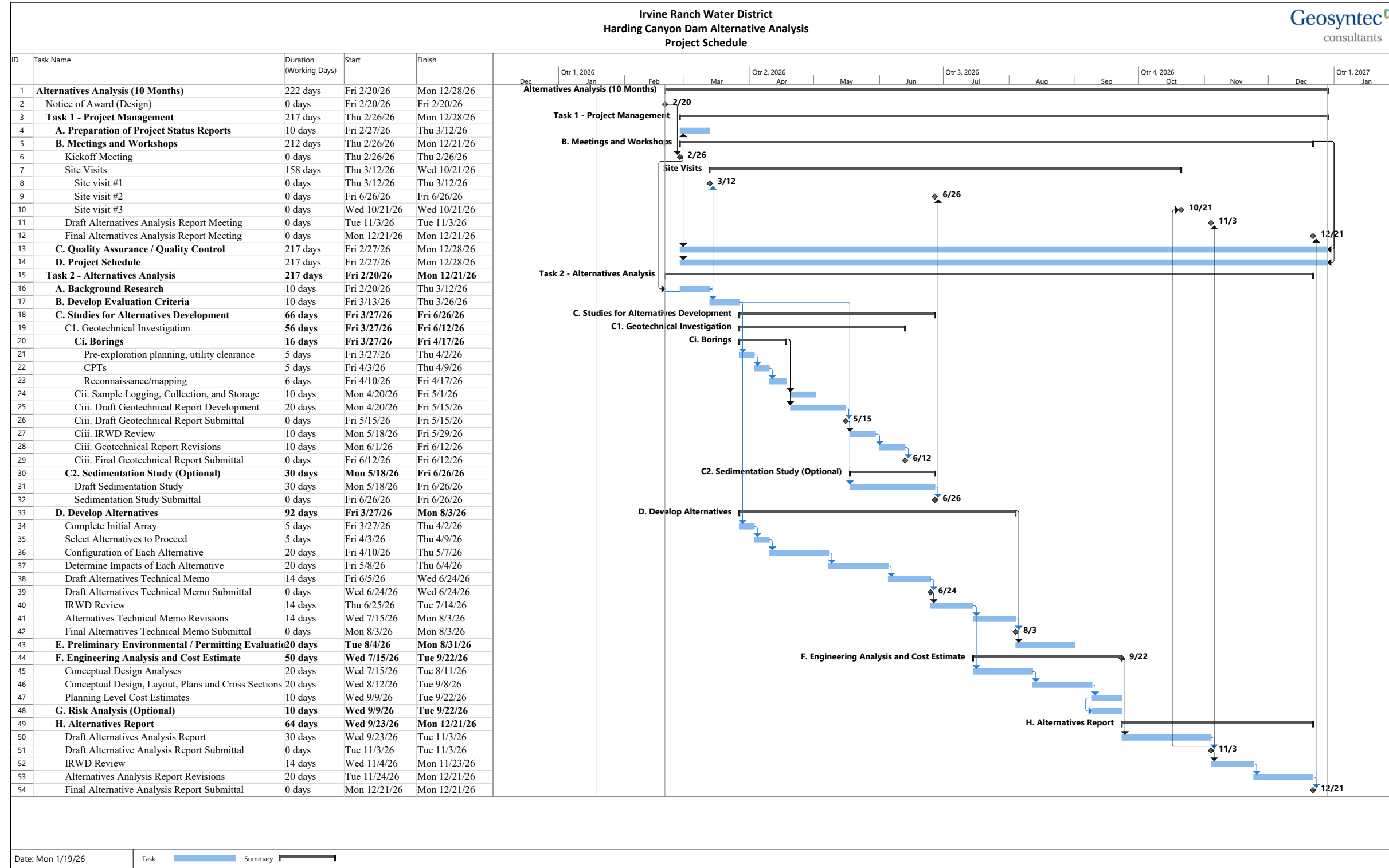
Section 1: Scope

	10A	Ownership Transfer - Sell (or Donate) Property	Sell (or donate) the reservoir property, including the dam and associated assets, in an as-is condition.		
	10B	Ownership Transfer - Via CM Agent	Enter an agreement with a qualified construction/risk-management agent (e.g., CMAR) to (a) develop and implement a site solution involving dam removal and (b) transfer ownership of the site to a third party, with the risk of ownership transfer borne by the construction/risk-management agent.		
11	Do-Nothing		Continue to operate, maintain, and repair dam as needed.	Assumption: Further characterization of the Do-Nothing Alternative will not be within our scope (e.g., no cost estimating of continued operations, no anticipation of what repairs may be needed, etc.).	

Section 4: Schedule

Section 4: Schedule

Geosyntec will maintain and consistently update the project schedule. Figure 3. below presents a Microsoft Project preliminary schedule outlining the Harding Canyon Dam alternatives analysis phase activities.





FEE PROPOSAL

For the Irvine Ranch Water District
Alternatives Analysis for the Harding Canyon Dam

April 14, 2026

Prepared by:

Geosyntec
consultants

Prepared for:


**Irvine Ranch
Water District**

Fee Proposal Cover Letter

Mr. Jacob Moeder, PE
Engineering Manager, Dams & Storage
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

April 14, 2026
Geosyntec Consultants, Inc.
1031 S. Broadway, Suite 300
Los Angeles, CA 90015

Subject: Irvine Ranch Water District Fee Proposal – Alternatives Analysis for the Harding Canyon Dam

Dear Mr. Moeder,

Geosyntec Consultants, Inc. submits the enclosed Fee Proposal for the Harding Canyon Dam Alternatives Analysis. The proposed fee has been developed based on the scope of work and schedule presented in our technical proposal, submitted under separate cover, and our understanding of the level of effort required to support a comprehensive alternatives evaluation.

The proposed fee reflects the anticipated labor, coordination, and technical effort necessary to evaluate dam rehabilitation, dam removal, sediment management, environmental considerations, and associated engineering analyses. The Level of Effort worksheet presents a detailed breakdown of estimated labor hours by personnel classification and includes fee estimates from key subconsultants. The proposed fee reflects the integrated roles of Geosyntec, Inter-Fluve, and LSA Associates in delivering the services described in the technical proposal.

Geosyntec is available to discuss this fee proposal with IRWD and to refine the scope, schedule, or level of effort as needed to align with the District's expectations and priorities. Should you have any questions or require additional information, please contact Chris Conkle, P.E., G.E., at (714) 465-1214.

Per discussions with IRWD staff, the anticipated start date of the project is May 2026 with an anticipated project end date of June 2027. Based on this assumption, the rate schedules shown will be maintained throughout the project's anticipated duration.

Sincerely,



Chris Conkle, PE, GE | Principal
(714) 465-1214
CConkle@geosyntec.com



Derek Morley, PE | Senior Principal
(530) 554-2485
DMorley@geosyntec.com



(1) Labor Cost		Geosyntec																				Subconsultant						Other Direct Costs (ODC)	ODC Markups	Project Total		
		Conkle		Lin		Morley		Wharton		RP, MR, DV, KH, AD		CT, MR, MC, CS MD, MM, SO; AH (LSA)		SU		ST		ER		Geosyntec Labor Total by Task		Burke (I-F)		JE, GK, EA, MM (I-F)		Subconsultant	Subconsultant					
		PM		Alt 1 Lead		Alt 2 Lead		Geo Inv Lead		Senior Principal		Principal		Senior		Senior Staff		Staff		Admin		Hour		Alt 3 Lead		Professional					Total	Markup
		\$/hr=	\$325.00	\$/hr=	\$300.00	\$/hr=	\$345.00	\$/hr=	\$300.00	\$/hr=	\$345.00	\$/hr=	\$325.00	\$/hr=	\$300.00	\$/hr=	\$210.00	\$/hr=	\$185.00	\$/hr=	\$104.00	Hour	Cost	Hour	Cost	Hour	Cost				Hour	Cost
1	Project Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-			
1A	Preparation of Project Status Reports	10	3,250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1,040	30	\$4,280	-	-	10	\$2,400	\$2,400	\$288	\$0	\$6,968	
1B	Meetings and Workshops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
1B-a	Kickoff Meeting	6	1,950	2	600	2	690	-	-	-	-	-	-	-	-	-	-	-	-	-	12	\$3,238	2	480	-	\$0	\$480	\$58	\$0	\$3,776		
1B-b	Site Visits (3 visits)	9	2,925	6	1,800	6	2,070	3	900	-	-	-	-	-	-	-	-	-	-	-	24	\$7,695	-	-	-	\$0	\$0	\$0	\$1,800	\$216	\$9,711	
1B-c	Draft Alternatives Analysis Report Meeting	6	1,950	2	600	2	690	-	-	-	-	-	-	-	-	-	-	-	-	-	12	\$3,238	2	480	-	\$0	\$480	\$58	\$0	\$3,776		
1B-d	Final Alternatives Analysis Report Meeting	4	1,300	2	600	2	690	-	-	-	-	-	-	-	-	-	-	-	-	-	10	\$2,588	2	480	-	\$0	\$480	\$58	\$0	\$3,126		
1C	Quality Assurance / Quality Control	24	7,800	16	4,800	16	5,520	4	1,200	4	1,380	4	1,300	4	1,200	12	2,520	12	2,220	-	124	\$27,912	16	3,840	12	\$2,880	\$6,720	\$806	\$0	\$35,438		
1D	Project Schedule	10	3,250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1,040	30	\$4,280	-	-	10	\$2,400	\$2,400	\$288	\$0	\$6,968	
2	Alternatives Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2A	Background Research	4	1,300	4	1,200	4	1,380	4	1,200	-	-	-	4	1,200	-	-	-	-	-	-	32	\$6,268	4	960	8	\$1,920	\$2,880	\$346	\$0	\$9,494		
2B	Develop Evaluation Criteria	8	2,600	4	1,200	4	1,380	-	-	-	-	-	-	-	-	-	-	-	-	-	20	\$5,176	4	960	4	\$960	\$960	\$115	\$0	\$6,251		
2C	Studies for Alternatives Development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2C1	Geotechnical Investigation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2C1i	Borings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2C1i-a	Pre-exploration planning, utility clearance	-	-	-	-	-	-	8	2,400	-	-	-	-	-	-	-	20	3,700	4	416	32	\$6,516	-	-	-	\$0	\$0	\$0	\$1,300	\$156	\$7,972	
2C1i-b	CPTs	-	-	-	-	-	-	4	1,200	-	-	-	-	-	-	-	10	1,850	-	-	14	\$3,050	-	-	-	\$0	\$0	\$0	\$11,400	\$1,368	\$15,818	
2C1i-c	Reconnaissance/mapping	-	-	-	-	-	-	10	3,000	-	-	-	-	-	-	-	-	-	-	-	30	\$2,980	-	-	20	\$4,800	\$4,800	\$576	\$0	\$8,356		
2C1ii	Sample Logging, Collection, Storage	-	-	-	-	-	-	4	1,200	-	-	-	-	-	-	-	4	740	4	416	12	\$2,356	-	-	-	\$0	\$0	\$0	\$0	\$2,356		
2C1iii	Geotechnical Report	4	1,300	-	-	-	-	6	1,800	-	-	-	-	-	-	-	10	1,850	4	416	30	\$5,360	-	-	6	\$1,440	\$1,440	\$173	\$0	\$6,973		
2C2	Sedimentation Study (See Optional)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	\$0	\$0	\$0	\$0	\$0		
2D	Develop Alternatives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2D-a	Complete Initial Array	4	1,300	2	600	2	690	-	-	-	-	-	-	-	-	-	-	-	-	-	10	\$2,588	2	480	-	\$0	\$480	\$58	\$0	\$3,126		
2D-b	Select Alternatives to Proceed	4	1,300	2	600	2	690	-	-	-	-	-	-	-	-	-	-	-	-	-	10	\$2,588	2	480	-	\$0	\$480	\$58	\$0	\$3,126		
2D-c	Configuration of Each Alternative	4	1,300	4	1,200	4	1,380	4	1,200	-	-	-	-	-	-	-	-	-	-	-	20	\$5,076	4	960	-	\$0	\$960	\$115	\$0	\$6,151		
2D-d	Determine Impacts of Each Alternative	4	1,300	4	1,200	4	1,380	-	-	8	2,760	-	-	8	2,400	10	2,100	-	-	-	62	\$11,116	4	960	20	\$4,800	\$5,760	\$691	\$0	\$17,567		
2D-e	Technical Memorandum	4	1,300	4	1,200	4	1,380	-	-	2	690	-	-	2	600	4	840	-	-	4	416	32	\$6,418	4	960	4	\$960	\$1,920	\$230	\$0	\$8,568	
2E	Preliminary Environmental/Permitting Evaluation	4	1,300	1	300	1	345	-	-	4	1,380	-	-	16	4,800	-	-	-	-	-	41	\$9,970	1	240	4	\$960	\$1,200	\$144	\$0	\$11,314		
2F	Engineering Analysis and Cost Estimate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2F-a	Conceptual Design Analyses	2	650	4	1,200	4	1,380	4	1,200	4	1,380	4	1,300	30	9,000	30	6,300	-	-	-	106	\$22,386	4	960	20	\$4,800	\$5,760	\$691	\$0	\$28,837		
2F-b	Conceptual Design Layout, Plans, and Cross Sections	6	1,950	24	7,200	6	2,070	-	-	4	1,380	-	-	60	12,600	-	-	-	-	-	126	\$25,174	6	1,440	20	\$4,800	\$6,240	\$749	\$0	\$32,163		
2F-c	Planning Level Cost Estimates	2	650	3	900	3	1,035	-	-	-	-	-	-	8	2,400	12	2,520	-	-	-	39	\$7,494	3	720	8	\$1,920	\$2,640	\$317	\$0	\$10,451		
2G	Risk Analysis (See Optional)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	\$0	\$0	\$0	\$0	\$0		
2H	Alternatives Report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	\$0	-	-	-	-	-	-	-	-		
2H-a	Draft Alternatives Analysis Report	6	1,950	6	1,800	6	2,070	4	1,200	4	1,380	4	1,300	4	1,200	10	2,100	10	1,850	4	416	76	\$15,248	6	1,440	12	\$2,880	\$4,320	\$518	\$0	\$20,086	
2H-b	Final Alternatives Analysis Report	6	1,950	2	600	2	690	-	-	-	-	-	-	4	840	-	-	-	-	4	416	24	\$4,490	2	480	4	\$960	\$4,320	\$518	\$0	\$9,328	
Total by Person/Staff Category		131	\$42,575	92	\$27,600	74	\$25,530	55	\$16,500	30	\$10,350	12	\$3,900	76	\$22,800	142	\$29,820	76	\$14,060	44	\$4,576	958	\$197,485	68	\$16,320	158	\$37,920	\$57,120	\$6,854	\$14,500	\$1,740	\$277,700

GEOSYNTEC CONSULTANTS 2026 U.S. RATE SCHEDULE

Staff Professional	\$185
Senior Staff Professional	\$210
Professional	\$239
Project Professional	\$268
Senior Professional	\$300
Principal	\$325
Senior Principal	\$345
Technician I	\$100
Technician II	\$110
Senior Technician I	\$120
Senior Technician II	\$132
Site Manager I	\$142
Site Manager II	\$162
Construction Manager I	\$174
Construction Manager II	\$189
Senior Designer	\$225
Designer	\$190
Senior Drafter/Senior CADD Operator	\$175
Drafter/CADD Operator/Artist	\$158
Project Administrator	\$104
Clerical	\$ 84
Direct Expenses	Cost plus 12%
Subcontract Services	Cost plus 12%
Personal Automobile (per mile)	Current Gov't Rate

Rates are provided on a confidential basis and are client and project specific.
Rates for field equipment, health and safety equipment, and graphical supplies presented upon request.
Construction management fee presented upon request.



INTER-FLUVE
2026 RATE SCHEDULE

Employee Type	Hourly Billing Rate	Type Detail
Administrative Support	\$99	Billing, Clerical
Senior Staff (Josh Epstein)	\$220	Senior Level Science & Engineering
Technical Principal (Greg Koonce, Emily Alcott, Marty Melchior, Mike Burke)	\$240	Principal Level Science & Engineering

HOURLY BILLING RATES EFFECTIVE JANUARY 2026

Job Classification							Hourly Rate Range ^{1,2}
Environmental Planning	Transportation	Air Quality/ Climate Change	Noise	Cultural/ Paleontological Resources	Natural Resources	GIS	
Principal	Principal	Principal	Principal	Principal	Principal	Principal	\$250–\$350
Associate	Associate	Associate	Associate	Associate	Associate	Associate	\$170–\$270
Senior Planner	Senior Transportation Planner/ Engineer	Senior Air Quality/ Climate Change Specialist	Senior Noise Specialist/Senior Noise Engineer	Senior Archaeologist/ Architectural Historian/ Paleontologist	Senior Biologist/ Botanist/Wildlife Biologist/Ecologist/ Soil Scientist/ Herpetologist/ Arborist	Senior GIS Specialist	\$110–\$240
Planner	Transportation Planner/ Engineer	Air Quality/ Climate Change Specialist	Noise Specialist/Noise Engineer	Archaeologist/ Architectural Historian/ Paleontologist	Biologist/Botanist/ Wildlife Biologist/ Ecologist/Soil Scientist/ Herpetologist/ Arborist	GIS Specialist	\$110–\$190
Assistant Planner	Assistant Transportation Planner/ Engineer	Air Quality/ Climate Change Analyst	Noise Analyst	Field Archaeologist/ Paleontologist	Assistant Biologist/ Botanist/Wildlife Biologist/Ecologist/ Soil Scientist/ Herpetologist/ Arborist	Assistant GIS Specialist	\$95–\$150
Office Services							
Marketing							\$0–\$185
Office Assistant/Discipline Assistant							\$110–\$150
Project Accountant							\$110–\$140
Document Management/Technical Editing/Graphics							\$115–\$160

¹ The hourly rate for work involving actual time in court (e.g., giving depositions or similar expert testimony) will be billed at \$400 per hour regardless of job classifications.

LSA IN-HOUSE REIMBURSABLE COSTS¹


Description	Unit Cost	Description	Unit Cost
Reproduction (8.5 x 11) B/W	\$0.07 per page	Total Station Surveying Instrument	\$50.00 per day
Reproduction (8.5 x 11) Color	\$0.40 per page	Level (Laser or Optical)	\$25.00 per day
Reproduction (11 x 17) B/W	\$0.10 per page	Laser Rangefinder	\$25.00 per day
Reproduction (11 x 17) Color	\$0.75 per page	Sound Meter	\$75.00 per day
CD Production	\$5.00 per CD	Sound Meter with Velocity Transducer	\$85.00 per day
USB Flash Drive	\$5.00 per drive	Differentially Corrected GPS	\$75.00 per day
Plotting	\$3.75 per sq ft	Water Quality Meter	\$25.00 per day
Aerial Drone	\$200.00 per day	Night Vision Goggles	\$50.00 per unit per night
Mileage On-Road	Current federal rate	Wildlife Camera	\$25.00 per day
Mileage Off-Road	Current federal rate	GPS Booster	\$25.00 per day
Tree Tag	\$1.00	Bat Monitoring Survey Kit	\$75.00 per day
		Small Mammal Trap	\$1.00 per trap per day

¹ Other direct costs shall be reimbursed at cost plus 10 percent.

April 21, 2026

Prepared by: J. Moeder / E. Le

Submitted by: F. Nye / P. Weghorst
K. Burton

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

SYPHON RESERVOIR IMPROVEMENT PROJECT CONSULTANT SELECTIONS

SUMMARY:

With the Syphon Reservoir Improvement Project approaching the construction phase, staff requested a proposal from the project's design firm, AECOM, to provide engineering support during construction. AECOM submitted a proposal in the amount of \$8,864,950. Staff also issued a Request for Proposals (RFP) to environmental consultants to provide environmental compliance monitoring during construction. Staff recommends that the Board:

- Authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$8,864,950 for engineering support during construction; and
- Authorize the General Manager to execute a Professional Services Agreement with Environmental Science Associates (ESA) in the amount of \$3,990,644 for environmental compliance monitoring during construction.

BACKGROUND:

In July 2025, IRWD retained a Construction Management Team to provide overall management and inspections services for the project. To complete the onboarding of major services required during construction, staff recently requested a proposal from AECOM, the design engineer, to provide engineering support during construction. Staff also issued an RFP for environmental compliance services during construction. Professional Services Agreement award recommendations for both work items are summarized below.

Engineering Support During Construction – Consultant Selection:

AECOM's scope for Engineering Support During Construction includes reviewing submittals, requests for information, retaining the role of Engineer of Record, serving as the project geologist, regular attendance of construction meetings, coordination with the Division of Safety of Dams, and preparing record drawings at the completion of the project. AECOM continues to perform well on their existing contracts with IRWD, including on the Santiago Creek Dam Improvement project where they are the prime consultant with GEI as a subconsultant. AECOM submitted a proposal in the amount of \$8,864,950 for engineering support during construction, which is included as Exhibit "A".

Environmental Services – Consultant Selection:

In February 2026, an RFP for environmental compliance monitoring during the Project's construction phase was distributed to seven environmental consulting firms. Proposals were

received from Dudek, Endemic Environmental Services, Environmental Science Associates (ESA), LSA Associates, Psomas, and Rincon Consultants. The RFP requested consultants to provide a scope of work for biological surveys and monitoring, paleontological and cultural resources monitoring, and team management during the construction phase of the Project.

After completing a thorough evaluation of the written proposals, staff prepared the consultant selection matrix which is attached as Exhibit "B". Based on the findings in this matrix, staff recommends the selection of ESA to complete this work. ESA demonstrated the following key strengths in their proposal:

- ESA's scope of work was fully responsive to the requirements of the RFP and consistent with the five-year Project construction schedule, including the timing of monitoring tasks during each phase of construction;
- ESA's project manager and team offer significant expertise in environmental compliance monitoring and have well-established, trusted relationships with the regulatory agencies;
- ESA demonstrates a thorough understanding of the regulatory permits and environmental documents that serve as the basis for environmental compliance monitoring;
- ESA proactively identified coordination strategies with regulatory agencies and other opportunities for cost efficiencies that could reduce monitoring frequency and associated costs;
- ESA's approach is focused on complying with environmental requirements while minimizing potential for delays caused by environmental obligations. ESA's scope includes optional tasks that would reduce the potential for construction delays;
- The ESA team offers extensive experience with construction monitoring on large-scale water resource projects, including previous work on dam projects;
- ESA's local biological and cultural monitors are highly familiar with the regulatory requirements in Southern California, and are well trained in safety and reporting protocols; and
- ESA's scope of work and level of effort are consistent with staff expectations.

ESA's proposed scope of work and budget proposal, which is provided as Exhibit "C", includes optional tasks that would proceed only as authorized upon further staff consideration. These optional tasks are intended to reduce delays and provide prompt treatment of any unanticipated discoveries of cultural or paleontological resources.

FISCAL IMPACTS:

The Syphon Reservoir Improvements Project 03808 is included in the FY 2025-26 Capital Budget. A budget increase will be included with the Construction Award recommendation, which is expected to be made at the next IRWD Board meeting.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA). The Syphon Reservoir Improvement Project Final Environmental Impact Report (EIR) was adopted by the IRWD Board of Directors on July 26, 2021. Addendum No. 1 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on August 26, 2024. Addendum No. 2 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on May 12, 2025. Addendum No. 3 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on October 27, 2025. Corresponding Notices of Determinations were filed with the County of Orange.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with AECOM in the amount of \$8,864,950 for engineering support during construction; and authorize the General Manager to execute a Professional Services Agreement with ESA in the amount of \$3,990,644 in support of environmental compliance monitoring during construction of the Syphon Reservoir Improvement Project, Project 03808.

LIST OF EXHIBITS:

- Exhibit "A" – AECOM Scope of Work and Fee Proposal
- Exhibit "B" – Environmental Compliance Monitoring Consultant Selection Matrix
- Exhibit "C" – ESA Scope of Work and Budget Proposal

Note: This page is intentionally left blank.

April 2, 2026

Mr. Jacob Moeder, PE
Engineering Manager – Dams & Storage
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

**Subject: Proposal for Engineering Services During Construction
Syphon Reservoir Improvement Project – Project No. 03808 (Code 7847)**

Dear Jacob,

AECOM Technical Services, Inc. (AECOM) is pleased to submit this proposal to provide Engineering Services During Construction (ESDC) for the Syphon Reservoir Improvement Project (SRIP). These services are intended to support construction of the new embankment dam, reservoir improvements, appurtenant facilities, and the Treatment Building, and to complement IRWD's Construction Management Team (CMT) during the full construction duration, anticipated to be five years (July 2026 through July 2031).

AECOM served as the design engineer for SRIP and is positioned to provide efficient, consistent, and responsive engineering support throughout construction. Our construction-phase services will focus on the Engineer-of-Record (EOR)/design intent role, including timely engineering responses to RFIs, technical review of submittals for conformance with the Contract Documents, development of design clarifications and revisions where required by field conditions, substantial geologic/geotechnical involvement at critical dam foundation and treatment milestones, and preparation of record drawings.

IRWD has retained a dedicated CMT led by COWI and Gannett Fleming to provide comprehensive construction management services. AECOM's scope is intentionally structured to avoid duplication of the CMT's responsibilities, which include (among other items) construction management and contract administration, QA/QC program implementation, inspections and materials testing, submittal/RFI processing and tracking, progress payment review, schedule and change management, document control, safety program oversight, training/startup coordination, and closeout administration. AECOM's role will be limited to engineering decision-making, design interpretation, and EOR deliverables necessary to keep construction moving and to maintain alignment with design intent and regulatory expectations.

We appreciate the opportunity to continue supporting IRWD on this critical project and look forward to partnering with IRWD, the Contractor, DSOD, and the CMT to deliver a safe, high-quality, and reliable facility.

Mr. Jacob Moeder, PE
SRIP Engineering Services During Construction
April 2, 2026

Sincerely,

AECOM Technical Services, Inc.



Michael G. Smith, PE, GE
Principal Geotechnical Engineer –
Construction Phase



Bryan C. Paine, PE
Vice President, Project Manager –
Engineering Services During Construction

Attachment:

Attachment A - Cost Breakdown of Total Fee

SCOPE OF SERVICES

1.0 INTRODUCTION AND PURPOSE

AECOM Technical Services, Inc. (AECOM) submits this proposal to provide Engineering Services During Construction (ESDC)—also referred to as construction phase engineering services—for the Syphon Reservoir Improvement Project (SRIP).

AECOM’s ESDC services will provide Engineer-of-Record (EOR) engineering support to help ensure construction proceeds in conformance with the Contract Documents and design intent, while maintaining timely resolution of engineering issues that arise during construction.

The anticipated construction duration for SRIP is 60 months (July 2026 through July 2031) with weekly construction progress meetings. AECOM’s scope is structured accordingly and is designed to scale to the volume of anticipated construction submittals, RFIs, and field engineering needs—particularly the extensive geotechnical and engineering geology support required for foundation excavation, acceptance, and treatment activities.

2.0 PROJECT DELIVERY FRAMEWORK AND INTERFACES

2.1 CONSTRUCTION DURATION AND MEETING CADENCE

- Construction duration: 60 months (July 2026–July 2031)
- Progress meeting cadence: Weekly

AECOM will attend weekly progress meetings and will participate in focused technical meetings as needed to support timely engineering decisions.

2.2 ROLES AND RESPONSIBILITIES (AVOIDING DUPLICATION OF CONSTRUCTION MANAGEMENT SERVICES)

IRWD has retained an independent **Construction Management Team (CMT)** to provide comprehensive construction management services. AECOM’s scope is intentionally written to **avoid duplication** of typical CM functions and to focus AECOM’s role on **EOR engineering services**, including design interpretation, technical review, and design revisions where needed.

In general:

- The **CMT** administers construction management functions such as contract administration, meeting administration, document control, QA/QC implementation, inspection staffing, materials testing, progress payments, schedule management, change management, and construction closeout administration.
- **AECOM** provides EOR engineering services including technical review of submittals for design intent, engineering responses to RFIs, design clarifications and revisions, and engineering participation in critical field decisions and dam safety-related technical coordination.

Where AECOM performs services that share similar titles with CM activities (e.g., submittals and RFIs),

AECOM's role is limited to **engineering review and engineering response content**. Administrative processing, routing, tracking, completeness screening, and distribution remain CM functions.

3. SCOPE OF SERVICES (TASK BREAKDOWN)

AECOM proposes the following task structure for SRIP ESDC services. The task structure is intended to:

- Provide comprehensive EOR engineering support throughout construction;
- Scale to SRIP's duration and anticipated construction volume; and
- Clearly separate EOR engineering services from CM responsibilities.

Note on level of effort: The fee estimate will establish the detailed labor hours and budgets for each task based on the anticipated submittal/RFI volume, weekly meeting cadence, planned construction sequencing, and IRWD's expectations for field support (including extensive geotechnical and geologic field involvement).

TASK 1 – PROJECT MANAGEMENT AND COORDINATION

1.1 Project Management

AECOM will provide project management for ESDC services, including:

- Management of AECOM staffing and resources for construction-phase engineering support
- Internal coordination across disciplines (dam/civil, structural, geotechnical, engineering geology, mechanical/process, electrical, instrumentation and controls)
- Internal tracking of ESDC activities and deliverables to support responsiveness
- Invoicing support and AECOM-side contract administration
- Internal QA/QC for AECOM-issued construction-phase deliverables (submittal reviews, RFI responses, sketches/bulletins, revised sheets, and technical memoranda)

1.2 Coordination with IRWD and the CMT

AECOM will coordinate closely with IRWD and the CMT to support efficient engineering workflows, including:

- Confirming points of contact and escalation paths for engineering decisions
- Aligning engineering deliverable priorities with construction needs (critical path items, long-lead procurement, and key dam milestones)
- Participating in engineering-focused coordination discussions to keep design clarifications ahead of construction

1.3 Weekly Progress Meetings and Focused Technical Meetings

AECOM will attend weekly in-person construction progress meetings throughout construction. AECOM will also participate in focused technical meetings as needed to address:

- Dam foundation exposure, acceptance, and treatment readiness
- Grout curtain and foundation treatment clarifications
- Embankment zoning, filter/drain criteria, and other key design intent items
- Inlet/outlet works and spillway technical coordination issues
- Treatment Building coordination issues and interface items

Important note: Meeting facilitation, agendas, and meeting minutes are expected to be provided by the Contractor and/or the CMT. AECOM's participation is focused on engineering input and decision-making, not meeting administration.

Task 1 Deliverables:

- Engineering decision notes, emails, or technical memoranda when needed to document design intent or engineering direction

TASK 2 – ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)

Task 2 encompasses AECOM's core EOR construction-phase responsibilities: technical review of submittals, responses to RFIs, design clarifications and revisions, participation in meetings, targeted site visits, extensive geotechnical and engineering geology field support, record drawing preparation, and additional engineering coordination.

2.1 Technical Review of Submittals (Shop Drawings) – Conformance with Contract Documents and Design Intent

AECOM will perform engineering technical reviews of contractor submittals requiring EOR evaluation for conformance with the Contract Documents and design intent. Reviews will focus on:

- Technical adequacy and compatibility with the design basis
- Consistency with performance requirements and design intent
- Interface coordination between disciplines where it affects design intent

AECOM's submittal review comments will be prepared and delivered in accordance with the project's submittal procedures and the requirements of the document management system. Based on current assumptions, the anticipated volume of shop drawing reviews is as follows:

- **Dam, Reservoir, Riparian Wetlands, Spillway, Inlet/Outlet Works, and Appurtenant Facilities:**
400 submittals and 200 resubmittals
- **Treatment Building and Related Utilities:**
300 submittals and 150 resubmittals

- **Total anticipated submittal reviews:**
700 submittals and 350 resubmittals

Interface with the CMT: The CMT administers submittal processing, routing, tracking, completeness screening, and distribution. AECOM provides engineering technical review and engineering dispositions only.

2.2 Contractor RFIs – Engineering Interpretation and Clarification

AECOM will provide timely engineering responses to RFIs requiring:

- Design interpretation
- Technical clarification
- Resolution of conflicts or ambiguities
- Engineering direction consistent with the Contract Documents and design intent

AECOM will prioritize RFIs affecting:

- Critical path activities
- Long-lead procurement
- Dam safety and foundation acceptance decisions
- Multi-discipline interface issues
- Treatment Building process/MEP/I&C integration issues

We assume that AECOM will need to prepare formal responses for 400 contractor RFIs.

Interface with the CMT: The CMT administers RFI workflow, tracking, and distribution. AECOM provides engineering response content only.

2.3 Contract Document Addenda, Design Revisions, and Field Sketches

AECOM will provide design clarifications and revisions required due to:

- Unforeseen field conditions
- Conflicts discovered during construction
- Constructability clarifications requiring design interpretation
- IRWD-authorized changes
- Regulatory or dam-safety-related clarifications requested during construction

Deliverables may include:

- Construction Drawing and Project Manual Addenda
- Field sketches and design bulletins
- Revised plan sheets and specification edits (as required)

- Supporting calculations or technical memoranda (as appropriate)

We plan to bundle multiple plan revisions, sketches, calculations, and specification updates into discrete addendum packages during the construction phase. For the purposes of this proposal, we anticipate preparing up to ten (10) such addendum packages.

Interface with the CMT: Contract change order negotiation and administration are CM responsibilities. AECOM's role is limited to the engineering basis, revised design content, and engineering documentation.

2.4 Site Visits – Multi-Discipline Engineering Support

AECOM will be available for frequent site visits to provide engineering judgment, resolve field issues, and support timely decisions. Site visits may include:

- Observations of construction activities where engineering interpretation is needed
- Issue resolution meetings on site
- Participation during key dam milestones when engineering presence is beneficial

AECOM will prepare **field memoranda** when engineering observations, interpretations, or recommendations should be documented for the project record.

Interface with the CMT: Daily inspection reporting, QA/QC documentation, and field coordination logistics remain CM responsibilities.

2.5 Selective (Targeted) Geotechnical and Engineering Geology Field Support (High-Intensity)

Because SRIP includes major dam foundation excavation, treatment, and embankment construction, AECOM will provide extensive geotechnical and engineering geology support, including:

- Engineering geology mapping of foundation exposures and abutments
- Interpretation of exposed conditions relative to design assumptions and specifications
- Engineering support for foundation acceptance decisions consistent with design intent
- Engineering support during foundation treatment activities where EOR clarifications are needed (including grout curtain-related engineering decisions as required)
- Targeted geotechnical judgment during embankment construction where design intent decisions are needed (e.g., key material transitions and localized conditions affecting specifications)

Interface with the CMT: Inspection staffing, materials testing, and QA/QC program execution are performed by the CMT and its testing/inspection consultants. AECOM provides EOR-level geotechnical and geologic judgment and design intent decisions.

2.6 DSOD and Regulatory Engineering Support (Design-related only)

AECOM will provide DSOD and regulatory engineering support limited to design and engineering

matters, including:

- Participation in DSOD discussions when design intent or design changes are involved
- Preparation of sealed clarifications, sketches, or revised sheets requested for regulatory review (as needed)
- Engineering support for acceptance-related technical documentation within EOR responsibilities
- Preparation and submittal of the FEMA Letter of Map Revision (LOMR) in accordance with the approved CLOMR, including development of required engineering documentation, coordination of certified as-built information and hydraulic analyses, completion of applicable FEMA MT-2 application forms, and response to FEMA comments through issuance of the final LOMR determination. As part of the LOMR effort, AECOM will prepare the required spillway maintenance documentation, describing inspection, operation, and maintenance procedures necessary to support the floodplain management assumptions of the LOMR. The spillway maintenance documentation will be incorporated into the overall Project Operations and Maintenance (O&M) Plan prepared by AECOM for the Syphon Reservoir Improvement Project.

Interface with the CMT: Scheduling of regulatory site visits, coordination logistics, and permit compliance tracking are CM responsibilities. AECOM provides engineering documentation and technical input only.

2.7 Record Drawings / As-Built Engineering Support

AECOM will support the record drawing process by:

- **Developing Record Drawings:**
Preparing the record drawing set by drafting all Contractor redlines and incorporating redlines provided by the inspection team. AECOM will also integrate any relevant sketches, drawing revisions, and changes documented through RFIs.
- **Engineering Verification:**
Providing engineering review and verification of record documents as needed, including consistency and quality checks to ensure the final record drawings accurately reflect field conditions and approved design changes.

Interface with the CMT: Closeout administration, compilation of record documentation, and record drawing verification for completeness are CM responsibilities. AECOM's role is limited to design-document updates and EOR seal responsibilities.

2.8 Additional Engineering Coordination (EOR Support)

AECOM will provide additional engineering coordination services as needed, including:

- Engineering calls, emails, and issue resolution
- Preparation of technical exhibits and summaries
- Engineering calculations supporting field decisions

- Technical evaluation of contractor-proposed alternatives (engineering acceptability and design intent only)
 - Additional bid phase support beyond what was authorized in the original design phase proposal
-

TASK 3 – OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)

AECOM can provide on-call engineering services upon written authorization by IRWD, such as:

- Additional engineering evaluation due to significant differing site conditions
 - Supplemental analyses or redesign requested by IRWD or regulators
 - Engineering support for owner-directed changes beyond the base scope
 - Specialized technical studies needed to address complex field issues
-

4. EXCLUSIONS (TO AVOID DUPLICATION)

AECOM's ESDC scope excludes the following services because they are typically included in CM scope and/or other IRWD contracts:

1. Construction management and contract administration (including progress payments, contract correspondence preparation, change order negotiation/administration, and claims administration)
2. QA/QC program implementation; construction inspection; materials testing; special inspections; and construction surveying for quantities or as-built field verification
3. Administrative management of submittal and RFI workflows (logs, routing, tracking, distribution, and completeness screening). AECOM provides engineering reviews/responses only
4. Document control system administration (system setup/administration, permissions, naming conventions, and filing)
5. Construction schedule management and time impact analysis
6. Safety program management and visitor safety orientation administration
7. Environmental compliance monitoring and enforcement
8. Public outreach and public relations support
9. Startup/commissioning leadership and training coordination

Estimated Cost Breakdown of Total Fee
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction
 April 2, 2026

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL		
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical	
TASK 1 - PROJECT MANAGEMENT																		
1.1	Project Management		904	904									1432	504	3744	\$905,696		\$905,696
1.2	Coordination with IRWD and the CMT	452	904	904			1376								3636	\$1,054,112		\$1,054,112
1.3	Meetings	236	472	472	236	500	500								2416	\$707,040	\$7,000	\$714,040
SUBTOTAL TASK 1		688	2280	2280	236	500	1876						1432	504	9,796	\$2,666,848	\$7,000	\$2,673,848
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																		
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	390	350	800	1200	1560	1600	260	110						6270	\$1,654,070		\$1,654,070
2.2	Contractor RFI Reviews (assume 400 RFIs)	180	200	320	360	360	440	20	20	180	360				2440	\$646,400		\$646,400
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	140	124	320	144	188	148	188	188	320	600				2360	\$550,652		\$550,652
2.4	Site Visits – Multi-Discipline Engineering Support	228	360	680	380	380	560	104	108						2800	\$784,140	\$8,000	\$792,140
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	504	80	776	820	820									3000	\$904,324	\$10,000	\$914,324
2.6	DSOD and Regulatory Engineering Support	480	120	480	180	180	480								1920	\$565,648		\$565,648
2.7	Record Drawings	16	20	80	80	60	60	60	100	200	400				1076	\$250,896		\$250,896
2.8	Additional Engineering Coordination (EOR Support)	192	192	380	188	340	380	40	40	48	96				1896	\$516,972		\$516,972
SUBTOTAL TASK 2		2130	1446	3836	3352	3888	3668	672	566	748	1456				21,762	\$5,873,102	\$18,000	\$5,891,102
TOTAL		2,818	3,726	6,116	3,588	4,388	5,544	672	566	748	1,456	1,432	504		31,558	\$8,539,950	\$25,000	\$8,564,950
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																		
3.1	Optional On-Call Engineering Services															\$300,000		\$300,000
SUBTOTAL OPTIONAL TASK																\$300,000		\$300,000
GRAND TOTAL (Base Tasks + Optional Task)		2,818	3,726	6,116	3,588	4,388	5,544	672	566	748	1,456	1,432	504		31,558	\$8,839,950	\$25,000	\$8,864,950

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 1 (2026)
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$350	\$360	\$260	\$320	\$230	\$200	\$155	\$125	\$225	\$175	\$160	\$130				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		96	96								200	96	488	\$104,000		\$138,370
1.2	Coordination with IRWD and the CMT	48	96	96			144							384	\$105,120		\$139,352
1.3	Meetings	24	48	48	24	80	80							304	\$80,240	\$600	\$106,565
	SUBTOTAL TASK 1	72	240	240	24	80	224	0	0	0	0	200	96	1,176	\$289,360	\$600	\$384,287
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	120	80	200	300	300	400	120	50					1570	\$392,650		\$515,914
2.2	Contractor RFI Reviews (assume 400 RFIs)	40	60	80	80	80	160	20	20	40	80			660	\$161,000		\$211,331
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	40	24	80	40	40	40	40	40	80	160			584	\$130,640		\$171,011
2.4	Site Visits – Multi-Discipline Engineering Support	40	60	80	40	40	40	8	8					316	\$88,640	\$1,500	\$119,097
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	96	80	96	100	100								472	\$142,360	\$1,500	\$190,769
2.6	DSOD and Regulatory Engineering Support	48	8	48	20	20	48							192	\$52,760		\$69,860
2.7	Record Drawings													0	\$0		\$0
2.8	Additional Engineering Coordination (EOR Support)	16	16	80	80	40	40			8	16			296	\$79,560		\$104,788
	SUBTOTAL TASK 2	400	328	664	660	620	728	188	118	128	256	0	0	4,090	\$1,047,610	\$3,000	\$1,382,772
	TOTAL	472	568	904	684	700	952	188	118	128	256	200	96	5,266	\$1,336,970	\$3,600	\$1,767,058
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	472	568	904	684	700	952	188	118	128	256	200	96	5,266	\$1,336,970	\$3,600	\$1,767,058

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 2 (2027)
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$359	\$369	\$267	\$328	\$236	\$205	\$159	\$128	\$231	\$179	\$164	\$133				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		192	192								288	96	768	\$182,112		\$243,260
1.2	Coordination with IRWD and the CMT	96	192	192			288							768	\$215,616		\$286,475
1.3	Meetings	48	96	96	48	96	96							480	\$136,368	\$2,000	\$183,035
	SUBTOTAL TASK 1	144	480	480	48	96	384	0	0	0	0	288	96	2,016	\$534,096	\$2,000	\$712,770
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	120	120	300	300	400	400	80	40					1760	\$460,100		\$606,844
2.2	Contractor RFI Reviews (assume 400 RFIs)	40	40	80	80	80	80			40	80			520	\$135,560		\$178,609
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	40	40	80	40	40	40	40	40	100	160			620	\$144,460		\$189,704
2.4	Site Visits – Multi-Discipline Engineering Support	40	80	160	80	80	120	16	20					596	\$161,424	\$2,000	\$215,728
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	96		120	300	300								816	\$235,704	\$2,000	\$313,585
2.6	DSOD and Regulatory Engineering Support	96	16	96	40	40	96							384	\$108,240		\$143,638
2.7	Record Drawings													0	\$0		\$0
2.8	Additional Engineering Coordination (EOR Support)	40	40	80	16	80	80			8	16			360	\$95,720		\$126,704
	SUBTOTAL TASK 2	472	336	916	856	1020	816	136	100	148	256	0	0	5,056	\$1,341,208	\$4,000	\$1,774,812
	TOTAL	616	816	1,396	904	1,116	1,200	136	100	148	256	288	96	7,072	\$1,875,304	\$6,000	\$2,487,582
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	616	816	1,396	904	1,116	1,200	136	100	148	256	288	96	7,072	\$1,875,304	\$6,000	\$2,487,582

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 3 (2028)
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$368	\$378	\$274	\$336	\$242	\$210	\$163	\$131	\$237	\$183	\$168	\$136				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		192	192								288	96	768	\$186,624		\$249,912
1.2	Coordination with IRWD and the CMT	96	192	192			288							768	\$220,992		\$294,332
1.3	Meetings	48	96	96	48	96	96							480	\$139,776	\$2,000	\$188,006
	SUBTOTAL TASK 1	144	480	480	48	96	384	0	0	0	0	288	96	2,016	\$547,392	\$2,000	\$732,250
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	50	50	100	200	360	300							1060	\$282,020		\$371,888
2.2	Contractor RFI Reviews (assume 400 RFIs)	20	20	40	40	40	40			20	40			260	\$69,460		\$91,738
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	16	16	40	20	40	20	40	40	40	80			352	\$79,376		\$104,217
2.4	Site Visits – Multi-Discipline Engineering Support	40	80	160	100	100	160	20	20					680	\$186,080	\$2,000	\$248,517
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	96		160	160	160								576	\$171,648	\$2,000	\$230,144
2.6	DSOD and Regulatory Engineering Support	96	16	96	40	40	96							384	\$110,960		\$147,597
2.7	Record Drawings													0	\$0		\$0
2.8	Additional Engineering Coordination (EOR Support)	40	40	80	16	80	80			8	16			360	\$98,120		\$130,188
	SUBTOTAL TASK 2	358	222	676	576	820	696	60	60	68	136	0	0	3,672	\$997,664	\$4,000	\$1,324,290
	TOTAL	502	702	1,156	624	916	1,080	60	60	68	136	288	96	5,688	\$1,545,056	\$6,000	\$2,056,540
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	502	702	1,156	624	916	1,080	60	60	68	136	288	96	5,688	\$1,545,056	\$6,000	\$2,056,540

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 4 (2029)
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$377	\$387	\$281	\$344	\$248	\$215	\$167	\$134	\$243	\$188	\$172	\$139				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		192	192								288	96	768	\$191,136		\$256,639
1.2	Coordination with IRWD and the CMT	96	192	192			288							768	\$226,368		\$302,274
1.3	Meetings	48	96	96	48	96	96							480	\$143,184	\$2,200	\$193,232
	SUBTOTAL TASK 1	144	480	480	48	96	384	0	0	0	0	288	96	2,016	\$560,688	\$2,200	\$752,146
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	50	50	100	300	300	300	30	10					1140	\$314,750		\$415,851
2.2	Contractor RFI Reviews (assume 400 RFIs)	20	20	40	40	40	40			20	40			260	\$71,180		\$94,237
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	16	16	40	16	40	20	16	16	40	80			300	\$72,764		\$95,883
2.4	Site Visits – Multi-Discipline Engineering Support	20	20	40	20	20	40	16	16					192	\$51,776	\$2,000	\$70,760
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	96		160	100	100								456	\$140,352	\$2,000	\$189,422
2.6	DSOD and Regulatory Engineering Support	96	16	96	40	40	96							384	\$113,680		\$151,599
2.7	Record Drawings													0	\$0		\$0
2.8	Additional Engineering Coordination (EOR Support)	40	40	80	16	80	80			8	16			360	\$100,536		\$133,727
	SUBTOTAL TASK 2	338	162	556	532	620	576	62	42	68	136	0	0	3,092	\$865,038	\$4,000	\$1,151,479
	TOTAL	482	642	1,036	580	716	960	62	42	68	136	288	96	5,108	\$1,425,726	\$6,200	\$1,903,625
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	482	642	1,036	580	716	960	62	42	68	136	288	96	5,108	\$1,425,726	\$6,200	\$1,903,625

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 5 (2030)
 Irvine Ranch Water District (IRWD)
 Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$386	\$397	\$288	\$353	\$254	\$220	\$171	\$137	\$249	\$193	\$176	\$142				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		192	192								288	96	768	\$195,840		\$263,636
1.2	Coordination with IRWD and the CMT	96	192	192			288							768	\$231,936		\$310,499
1.3	Meetings	48	96	96	48	96	96							480	\$146,736	\$2,200	\$198,459
	SUBTOTAL TASK 1	144	480	480	48	96	384	0	0	0	0	288	96	2,016	\$574,512	\$2,200	\$772,594
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)	50	50	100	100	200	200	30	10					740	\$204,550		\$271,499
2.2	Contractor RFI Reviews (assume 400 RFIs)	40	40	40	80	80	80			40	80			480	\$134,400		\$178,200
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	16	16	40	16	16	16	40	40	40	80			320	\$75,000		\$98,798
2.4	Site Visits – Multi-Discipline Engineering Support	40	80	160	80	80	120	24	24					608	\$175,632	\$1,500	\$235,601
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	96		160	100	100								456	\$143,836	\$1,500	\$194,053
2.6	DSOD and Regulatory Engineering Support	96	16	96	40	40	96							384	\$116,456		\$155,702
2.7	Record Drawings													0	\$0		\$0
2.8	Additional Engineering Coordination (EOR Support)	40	40	40	40	40	80	40	40	8	16			384	\$102,120		\$135,538
	SUBTOTAL TASK 2	378	242	636	456	556	592	134	114	88	176	0	0	3,372	\$951,994	\$3,000	\$1,269,391
	TOTAL	522	722	1,116	504	652	976	134	114	88	176	288	96	5,388	\$1,526,506	\$5,200	\$2,041,985
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	522	722	1,116	504	652	976	134	114	88	176	288	96	5,388	\$1,526,506	\$5,200	\$2,041,985

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Estimated Costs for Year 6 (2031)
Irvine Ranch Water District (IRWD)
Syphon Reservoir Improvement Project - Engineering Services During Construction

Task No.	Task Description	AECOM Labor Hours ¹											AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS ²	TOTAL	
		Principal Engineer	Project Manager	Deputy Project Manager, Geotechnical Lead	Senior Engineer / Scientist / Geologist / Architect	Senior Project Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist / Architect	Staff Engineer / Scientist / Geologist / Architect	Senior Designer / Drafter / CAD Manager	Drafter / Technician	Senior Project Controls Specialist					Office / Clerical
		\$396	\$407	\$295	\$362	\$260	\$226	\$175	\$140	\$255	\$198	\$180	\$146				
TASK 1 - PROJECT MANAGEMENT																	
1.1	Project Management		40	40								80	24	184	\$45,984		\$62,027
1.2	Coordination with IRWD and the CMT	20	40	40			80							180	\$54,080		\$72,387
1.3	Meetings	20	40	40	20	36	36							192	\$60,736	\$1,000	\$82,477
	SUBTOTAL TASK 1	40	120	120	20	36	116	0	0	0	0	80	24	556	\$160,800	\$1,000	\$216,891
TASK 2 - ENGINEERING SERVICES DURING CONSTRUCTION (EOR TECHNICAL SUPPORT)																	
2.1	Shop Drawing Submittal Reviews (assume 700 submittal, 350 resubmittal reviews)													0	\$0		\$0
2.2	Contractor RFI Reviews (assume 400 RFIs)	20	20	40	40	40	40			20	40			260	\$74,800		\$99,500
2.3	Contract Document Addenda, Design Revisions, and Field Sketches	12	12	40	12	12	12	12	12	20	40			184	\$48,412		\$64,259
2.4	Site Visits – Multi-Discipline Engineering Support	48	40	80	60	60	80	20	20					408	\$120,588	\$1,000	\$162,020
2.5	Selective (Targeted) Geotechnical/Geology and Engineering Field Support	24		80	60	60								224	\$70,424	\$1,000	\$95,222
2.6	DSOD and Regulatory Engineering Support	48	48	48			48							192	\$63,552		\$85,689
2.7	Record Drawings	16	20	80	80	60	60	60	100	200	400			1076	\$250,896		\$329,250
2.8	Additional Engineering Coordination (EOR Support)	16	16	20	20	20	20			8	16			136	\$40,916		\$54,620
	SUBTOTAL TASK 2	184	156	388	272	252	260	92	132	248	496	0	0	2,480	\$669,588	\$2,000	\$890,559
	TOTAL	224	276	508	292	288	376	92	132	248	496	80	24	3,036	\$830,388	\$3,000	\$1,107,450
TASK 3 - OPTIONAL ON-CALL ENGINEERING SERVICES (ONLY IF AUTHORIZED)																	
3.1	Optional On-Call Engineering Services													0	\$0		\$0
	SUBTOTAL OPTIONAL TASK	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0
	GRAND TOTAL (Base Tasks + Optional Task)	224	276	508	292	288	376	92	132	248	496	80	24	3,036	\$830,388	\$3,000	\$1,107,450

Notes & Assumptions:

- 1.) Billing Rates: AECOM's billing rates will escalate by 2.5% annually, effective October 1 of each new fiscal year. AECOM assumes that the construction phase will occur from July 2026 through July 2031 (a total duration of 60 months). If the construction period extends beyond this timeframe, AECOM reserves the right to request a variance for additional services.
- 2.) Direct Costs / Materials: Direct costs and materials will be provided with no markup. These costs include, but are not limited to, sampling equipment, mileage to meetings and sites, use of AECOM fleet vehicles, courier fees, rental cars, and document reproduction.

Bill Rates by Year

Irvine Ranch Water District (IRWD)

Syphon Reservoir Improvement Project - Engineering Services During Construction

April 2, 2026

Position	AECOM Bill Rates by Year with 2.5% Annual Escalation					
	2026 Rate	2027 Rate	2028 Rate	2029 Rate	2030 Rate	2031 Rate
Principal Engineer	\$350.00	\$359.00	\$368.00	\$377.00	\$386.00	\$396.00
Project Manager	\$360.00	\$369.00	\$378.00	\$387.00	\$397.00	\$407.00
Deputy Project Manager, Geotechnical Lead	\$260.00	\$267.00	\$274.00	\$281.00	\$288.00	\$295.00
Senior Engineer / Scientist / Geologist / Architect	\$320.00	\$328.00	\$336.00	\$344.00	\$353.00	\$362.00
Senior Project Engineer / Scientist / Geologist / Architect	\$230.00	\$236.00	\$242.00	\$248.00	\$254.00	\$260.00
Project Engineer / Scientist / Geologist / Architect	\$200.00	\$205.00	\$210.00	\$215.00	\$220.00	\$226.00
Senior Staff Engineer / Scientist / Geologist / Architect	\$155.00	\$159.00	\$163.00	\$167.00	\$171.00	\$175.00
Staff Engineer / Scientist / Geologist / Architect	\$125.00	\$128.00	\$131.00	\$134.00	\$137.00	\$140.00
Senior Designer / Drafter / CAD Manager	\$225.00	\$231.00	\$237.00	\$243.00	\$249.00	\$255.00
Drafter / Technician	\$175.00	\$179.00	\$183.00	\$188.00	\$193.00	\$198.00
Project Controls / Assistant	\$160.00	\$164.00	\$168.00	\$172.00	\$176.00	\$180.00
Office / Clerical	\$130.00	\$133.00	\$136.00	\$139.00	\$142.00	\$146.00

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Irvine Ranch Water District

Syphon Reservoir Improvement Project Environmental Compliance Monitoring



April 2, 2026

Project Manager: Maile Tanaka
(310) 387-7833 | MTanaka@esassoc.com

Environmental Science Associates
esassoc.com



Irvine Ranch Water District

Syphon Reservoir Improvement Project Environmental Compliance Monitoring

PREPARED FOR:

Irvine Ranch Water District

Emily Le
Environmental Compliance Analyst
15600 Sand Canyon Ave
Irvine, CA 92618

PREPARED BY:

Environmental Science Associates

Maile Tanaka, Project Manager
420 Exchange, Suite 260
Irvine, CA 92602
MTanaka@esassoc.com

April 2, 2026



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APPENDICES

A. Resumes

B. Insurance

C. Proposed Contract Modifications



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April 2, 2026

Irvine Ranch Water District

Attention: Emily Le
15600 Sand Canyon Avenue
Irvine, CA 92618

RE: Proposal for Syphon Reservoir Improvement Project Environmental Compliance Monitoring

Dear Ms. Le,

Environmental Science Associates (ESA) has supported Irvine Ranch Water District (IRWD) for the past 8 years in preparing for the construction of the new Syphon Reservoir Dam. We are extremely proud and excited for the construction work to begin in earnest, guided by the permits and the mitigation monitoring and reporting plan we helped to develop. In this detailed proposal responding to your Request for Proposals, we have outlined a construction monitoring program and team structure that is reflective of your compliance commitments and regulatory requirements with clear level of effort assumptions for full compliance, including allowances for efficiencies we expect are achievable over the duration of the construction work.

As you know, ESA is intimately familiar with the Syphon Reservoir Project and the relevant mitigation measures and permit conditions that will apply during project construction. Our team, in collaboration with IRWD and your design consultants, prepared the California Environmental Quality Act (CEQA) documentation and assisted with the myriad regulatory permitting efforts, including years of meetings with regulatory agency representatives to work through the permitting and mitigation challenges. With our deep knowledge of the work effort, we have assembled a core management team that will be led by **Maile Tanaka**, a principal biologist based out of our Irvine office who has been with ESA for over 10 years. As project manager, Maile will be responsible for day-to-day communications, staffing, and quality control. She is already intimately familiar with the project and will be dedicated to providing responsive, high-quality service. Maile will be supported by **Kyle Garcia** for archaeological, tribal, and paleontological monitoring oversight. In addition, **Sarah Spano** and **Scott Holbrook** will provide technical support, agency consultation, and quality control oversight supporting project delivery. This leadership team will be supported by a crew of field monitors and technical experts identified in this proposal, assembled to meet the project's specific compliance commitments. Overall, with our locally based monitoring staff and deep project understanding, ESA is committed to responsive delivery of monitoring and reporting services needed for the duration of construction.

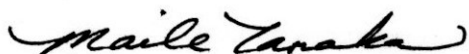
Why Choose ESA?

➔ **Syphon Reservoir Compliance Knowledge:** For the past 8 years, ESA has partnered with IRWD in navigating the complexities of planning and permitting the Syphon Reservoir Project. Our knowledge of the project mitigation commitments is unmatched, which means we will hit the ground running. We are excited to build on this solid foundation and we are committed to keeping the monitoring effort on schedule and on budget.

- **Construction Compliance Expertise:** ESA has broad experience with environmental compliance monitoring for large-scale utility infrastructure projects throughout California, as we outline in this proposal. We understand the logistical challenges and continuity requirements of large-scale daily monitoring efforts, having supported the High-Speed Rail Authority with daily monitoring for over 6 years, California Department of Water Resources Oroville Spillway Emergency Response & Recovery Project and Perris Dam Emergency Release Facility construction for 2 years, Los Angeles Department of Water and Power Haiwee Dam Remediation Project for over 3 years, and numerous solar developments and linear power conveyance projects in the Southern California desert. Our local biological and cultural monitors are highly trained in the specific local regulatory requirements common in Southern California and are well trained in safety and reporting protocols. Our goal is always to deliver environmental compliance strategies that recognize compliance commitments while focusing on maintaining schedule through completion.
- **Agency and Tribal Consultation Expertise:** ESA's history working with regulatory wildlife agencies in developing permit requirements will assist us in identifying appropriate monitoring cadence. We have assumed that daily monitoring is needed during certain times but that, over the duration of the construction activities, the monitoring scheduling will vary. Conferring this strategy to the wildlife agencies will be essential to maintain level of effort efficiencies. ESA's solid relationships with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service will support a continued trust in protective monitoring methods. In addition, ESA's cultural resources team has established a strong working relationship with the Gabrieleño Band of Mission Indians–Kizh Nation representatives as we have worked alongside them on more than 30 construction monitoring projects. Given this relationship, if issues arise due to Tribal concerns, Kyle Garcia and his team are in a good position to help navigate solutions and will be able to reach consensus faster regarding treatment of precontact or Native American resources should they be encountered during construction.
- **Commitment to Customer Service:** ESA is committed to responsive delivery of monitoring services. We understand IRWD's performance expectations and have assembled a local, redundant team that is trained and ready when needed. Our goal is to demonstrate environmental compliance to minimize the potential for delays caused by environmental compliance commitments.

We have greatly valued our partnership with IRWD over the past 20 years, and we appreciate this opportunity to be considered for the implementation phase of the project. This letter is signed by Tom Barnes, who as vice president has the authority to represent and contractually bind the firm, and Maile Tanaka as the proposed project manager. Should you have any questions, please feel free to contact Maile Tanaka at 310-387-7833 or mtanaka@esassoc.com.

Sincerely,



Maile Tanaka,
Project Manager, Principal Biologist



Tom Barnes
Principal Associate and Vice President

SECTION 1: SCOPE

Scope of Work

Environmental Science Associates (ESA) has worked effectively as a partner to Irvine Ranch Water District (IRWD) on the Syphon Reservoir Improvement Project (project) since 2018 when we commenced focused surveys and technical analyses to support California Environmental Quality Act (CEQA) documentation, first for the project's Geotechnical Investigations and then for the project Environmental Impact Report (EIR). Our work has involved extensive planning, permit assistance and agency coordination to develop complex mitigation packages to address resource impacts and Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) issues, as well as secure agency approvals. Our intimate familiarity with the project and the details of permit and mitigation requirements, as well as our successful collaboration with IRWD, give us a unique perspective and depth of project understanding to continue to support the reservoir expansion project. This was demonstrated by ESA's biological and cultural teams, who conducted compliance monitoring and reporting for the project's Geotechnical Investigations, and more recently, in January 2026, when ESA biologists performed pre-project compliance monitoring during vegetation removal for the access and staging areas in accordance with permit conditions. The latter effort included obtaining California Department of Fish and Wildlife (CDFW) approval for the ESA monitoring team as designated biologists and biological monitors. These CDFW-approved biologists will also be supporting the surveys, monitoring, and reporting outlined in the tasks described below. Similarly, our cultural resources specialists are also very familiar with the project site and its resources and the same team leaders that have contributed to the project's cultural resources analyses, compliance monitoring and reporting efforts will continue to have leading roles during the requisite monitoring during project construction. Wherever feasible, ESA will use our extensive project experience and agency-approved staff, survey methodologies, and reporting templates to bring greater efficiency to support project implementation.

ESA has outlined our approach to the scope of work in the following tasks.

Task 1. Biological Surveys and Monitoring

Subtask 1.1 – Confirm Demarcation for Avoidance Areas and Disturbance Limits

In compliance with Incidental Take Permit (ITP) Conditions 5.9, 5.10, and 6.3; Lake and Streambed Alteration Agreement (LSAA) Measure 2.33; and Mitigation Monitoring and Reporting Program (MMRP) Mitigation Measures BIO-2, ESA biologists will coordinate with the Construction Management (CM) team to confirm that the disturbance limits are demarcated prior to work commencing, and that biologically sensitive areas to be avoided are flagged or fenced off for protection.

Assumption: ESA will confirm the boundaries, but installation of markers will be conducted by IRWD or its contractor.

Subtask 1.2 – Implement Worker Environmental Awareness Program

In compliance with ITP Measure 5.4 and LSAA Measure 2.7, ESA will prepare a Worker Environmental Awareness Program (WEAP) presentation to inform personnel of the sensitive biological resources within the project site and immediate vicinity. ESA will update the 2026 WEAP training prepared for the vegetation removal activities. The WEAP will include a description of special-status species and sensitive habitats; species ecology, sensitivity to human activities, status, and legal protections; permit compliance requirements and specific measures to protect the species (e.g., biological monitors, avoidance buffers that will be flagged/marked in the field as appropriate); what workers should do if special-status species are observed; the importance of complying with avoidance and minimization measures; and penalties for violations. A fact sheet summarizing the information in the WEAP presentation will be provided for attendees. Spanish versions will also be provided. ESA will have all attendees sign a form acknowledging they understand all protection measures, which will be available to CDFW upon request.

Assumptions: This task assumes one WEAP training prior to the start of project activities will be needed. WEAP training for new workers and annual WEAP refresher trainings will be conducted on-site by the biological monitor during morning safety tailgates.

Subtask 1.3 – Conduct Pre-Project Surveys

Subtask 1.3.1 – Conduct Pre-Project Surveys for Crotch's Bumble Bee

In compliance with ITP Condition 7.4, ESA biologists will conduct pre-project surveys for Crotch's bumble bee (CBB). The CDFW-approved designated biologist will conduct two surveys no more than 10 days prior to the commencement of vegetation removal or grading activities. Surveys will be spaced at least 4 days apart, with the second occurring within 2 days prior to work starting. If CBB is detected or suspected, the designated biologist will flag any areas where CBB was observed and monitor them to minimize take of CBB.

Subtask 1.3.2 – Conduct Pre-Project Surveys for Avian Species

In compliance with LSAA Measures 2.17 and 2.24 and MMRP Mitigation Measures BIO-2 and BIO-3, ESA biologists will conduct pre-project surveys for wildlife resources, including coastal California gnatcatcher, cactus wren, white-tailed kite, and nesting birds. Survey for nesting birds will be conducted no more than 3 days prior to any vegetation clearing activities or ground disturbance. Methodology will include walking all areas of suitable habitat while visually examining all trees and vegetation for active nests. Binoculars will be used to examine the canopies of trees, shrubs, and individual birds to observe specific behavior patterns. Active nests will be identified by indicators such as young at nest, presence of whitewash near the nest, and/or adult birds bringing nesting material/food to the nest. The locations of nests or special-status species will be mapped. For white-tailed kite and active nests, recommended buffer zones (typically 300 feet for songbirds, 500 feet for raptors, or as determined appropriate by the biological monitor) will be flagged in the field and avoided until the nesting cycle is complete or the biological monitor determines the young have fledged and clearing activities can occur. Per LSAA Measure 2.24, work shall not commence or continue until any white-tailed kite moves from the area of their own volition.

Following the pre-project surveys, ESA will prepare a letter report, which will include a description of the site, existing conditions, methodology, and results, including a map depicting the locations of any California gnatcatcher, white-tailed kite, or active nests detected and recommended buffer zones as applicable.

Deliverable: Pre-Project Survey Letter Report – electronic version (PDF)

Assumptions:

- This task assumes up to three nesting bird pre-construction surveys with two biologists per survey. To the extent feasible, pre-project surveys will be conducted concurrently as the schedule allows. If additional pre-project surveys are needed (e.g., if work does not start within 3 days of the survey, or if work stops and an additional survey is required prior to work starting again), subsequent surveys can be conducted during biological compliance monitoring (Subtask 1.4, below).
- Per LSAA Measure 2.24, the letter report documenting the results of the white-tailed kite survey must be submitted to CDFW for review at least 5 days prior to the start of work or 2 weeks following the survey, whichever comes first. This task assumes the letter report will be prepared for submittal within this timeframe. If a subsequent nesting bird survey is needed after the letter report is prepared, a revised version will be submitted immediately following the last pre-project survey.

Subtask 1.4 – Conduct Biological Compliance Monitoring

ESA will assist IRWD and its contractors in maintaining compliance with permit conditions and CEQA requirements. ESA has CDFW-approved designated biologists and biological monitors for this project who are familiar with the biological resources on-site (see Section 2 below). In compliance with various permit conditions (ITP Conditions 5.2, 5.3, 5.5, 6.3, 6.8, 7.2, and 7.3; LSAA Measures 2.8-2.15, 2.18-2.19, 2.25, 2.27-2.28) and MMRP Mitigation Measures BIO-2 and BIO-3, ESA biologists will monitor project construction during vegetation removal activities or activities in the immediate vicinity of sensitive biological resources (e.g., CBB, special-status wildlife, nesting birds); recommend and/or implement avoidance measures (e.g., buffers, noise attenuation) where appropriate; and provide documentation of activities. Whenever on-site, ESA biological

monitors will coordinate with the CM team, confirm that wildlife incidentally trapped due to project activities are allowed to escape, check that fencing/flagging of sensitive biological resources and avoidance areas are intact, and perform a visual sweep of the daily work area by walking ahead of grading and vegetation removal equipment to look for any new sensitive biological resources (e.g., CBB, especially during the Colony Active Period [February 1 through August 31]). If CBB are detected or suspected, the designated biologist shall mark and closely observe those areas during subsequent clearing work. Any wildlife relocated or injuries/mortalities will be documented and immediately reported to IRWD before being reported to CDFW. ESA biological monitors will also assist IRWD and its contractors to check for compliance with the Weed Management Plan—the ESA biological monitors are familiar with the requirements of the plan because they contributed to its development. ESA biological monitors will map any sensitive biological resources via the Field Maps application, and complete daily records of monitoring observations, including photographs, via the Fulcrum application.

ESA has a strong relationship with CDFW and assisted IRWD in negotiating the project’s ITP and LSAA. Since ITP Condition 6.3 allows for compliance inspections by the designated biologist to be reduced to a minimum of 1 day per week if the permittee obtains written approval from CDFW, ESA will work in conjunction with IRWD to proactively coordinate for CDFW approval to reduce the project monitoring requirements for CBB immediately following initial vegetation removal activities in an effort to bring cost efficiencies to the project.

Assumptions:

- Vegetation clearing is anticipated for up to 3 weeks in the first year of construction. Because the ITP requires that a CBB designated biologist must be on-site during any vegetation clearing, this task assumes that one CBB qualified biological monitor will be needed for 18 days of vegetation clearing, and that all vegetation clearing will occur immediately at the start of project construction. As a contingency, this task includes up to 24 additional days of monitoring by a CBB designated biologist in Year 1.
- Following initial vegetation clearing, this task assumes that one CBB monitor and an additional biological monitor will conduct weekly monitoring checks on separate days, and additional monitoring can be conducted by CDFW-approved designated biologists (up to 32 days) and other biological monitors (up to 28 days) on an as-needed basis. This task assumes that the monitoring effort will be reduced for subsequent years of the project.
- If work occurs during nesting bird season (typically February 15 to August 31, or January 15 to June 31 for raptors) any detected nest must be monitored and avoidance buffers (e.g., up to a 300- to 500-foot radius around active nests) may be recommended, at the discretion of the monitoring biologist, where no work should occur until nesting is complete. The cost estimate for this task assumes the biological monitor(s) can check nests as needed while on-site prior to the start of work.
- Should additional biological monitoring services be needed (e.g., more than one monitor is needed on-site per day to cover multiple work areas, the vegetation clearing or ground disturbance occurs for longer than anticipated, numerous sensitive biological resources are found, or prolonged active nest monitoring is needed), a proposal amendment can be submitted upon request.

Subtask 1.5 – Prepare Compliance Reports

In compliance with ITP Conditions 6.4, 6.5, and 6.6 and LSAA Measures 2.16 and 4.2, ESA will prepare the following reports:

- LSAA Weekly Nesting Bird Reports: ESA will compile a weekly summary report to CDFW regarding any active nests identified on-site, buffer distances established for each nest, any adjustments made to established buffers, and the status/outcome of nests.
- ITP Monthly Compliance Reports: ESA will compile compliance monitoring observations and inspection records and will summarize the implementation status of mitigation measures in a Monthly Compliance Report for submittal to CDFW.
- ITP Annual Status Reports: ESA will prepare an Annual Status Report no later than January 31 of every year for each of the 4 years of construction. The report will include a summary of all Monthly Compliance Reports for that year, a summary of compliance with the Weed Management Plan, and requirements of ITP Condition 6.5 about project information regarding avoidance, minimization, and impacts related to CBB.

- California Natural Diversity Database (CNDDDB) Reports: For all observations of special-status species, ESA will fill out CNDDDB forms within 14 days of sightings. For any CBB observations, copies of the submitted CNDDDB forms will be submitted with the Monthly Compliance Report or Annual Status Report, whichever is submitted first relative to the observation.
- LSAA Final Report: Within 30 days of project completion, ESA will prepare a final report documenting the project's compliance with each of the LSAA Protective Measures. The report will summarize monitoring reports, any relocated wildlife, special-status species observations reported to the CNDDDB, invasive species discovered and removed, and final temporary and permanent impact amounts.

Deliverables: Weekly Nesting Bird Reports, Monthly Compliance Reports, Annual Status Reports, CNDDDB Reports, LSAA Final Report – electronic versions (PDF)

Assumptions:

- Draft reports will be submitted electronically (Word Document, PDF) to IRWD for review. Comments received will be incorporated into an electronic final report and submitted to IRWD for upload to CDFW via Environmental Permit Information Management System (EPIMS). ESA can submit to CDFW via EPIMS upon request.
- This task assumes that the Year 4 Annual Status Report will serve as the ITP Final Mitigation Report if IRWD provides information related to ITP Conditions outside of this scope of work (outside of ITP Conditions 5, 6, and 7) directly as written redline revisions to the draft report. If ITP Conditions outside of this scope of work are not completed prior to the Year 4 Annual Status Report being due, then ESA will assist IRWD with the preparation of a separate ITP Final Mitigation Report under a separate scope of work.

Task 2. Cultural Resources and Paleontological Monitoring

Subtask 2.1 – Confirm Boundary of Environmentally Sensitive Areas Around Cultural Resources

In compliance with MMRP Mitigation Measures CUL-1 and prior to construction activities at the project site, ESA archaeologists will coordinate with the CM team to ensure that Environmentally Sensitive Areas are established around the two known cultural resources (CA-ORA-1237 and the Latrine Site) at the site. Specifically, ESA will ensure that protective fencing or flagging is established around the boundary of each resource, including a 50-foot buffer, and they are clearly marked in the field and on design plans with exclusion markers to ensure avoidance during project-related ground disturbance.

Assumption: ESA will monitor the installation of fencing around the Environmentally Sensitive Areas, but actual fence installation will be conducted by IRWD or the construction crew.

Subtask 2.2 – Conduct Worker Sensitivity Training

In compliance with MMRP Mitigation Measures CUL-2 and GEO-2 and prior to construction activities, ESA will prepare a Worker Sensitivity Training (i.e., a WEAP) presentation that will be presented to construction crew personnel. The presentation will discuss the monitoring requirements for the project regarding the protection of archaeological and paleontological resources, the recognition of the types of resources that could be encountered within the project site, and the required procedures to be followed in an event resources are discovered during construction. Training may include a PowerPoint presentation or handouts for attendees. Documentation (i.e., sign-in sheet) will be completed demonstrating that construction personnel attended the training.

Assumptions: ESA will perform two trainings that will be carried out by an ESA archaeologist and paleontologist. Additional trainings for any new workers or annual refresher trainings will be conducted on-site by the cross-trained archaeological/paleontological monitor during morning safety tailgates.

Subtask 2.3 – Conduct Archaeological and Paleontological Compliance Monitoring

In compliance with MMRP Mitigation Measures CUL-3 and GEO-3, ESA will conduct archaeological and paleontological monitoring of ground-disturbing activities (e.g., clearing/grubbing, grading, trenching, drilling/boring, or related moving or excavation of soils) in undisturbed areas in association with construction of the project. ESA will provide a cross-trained monitor with experience in identifying both archaeological and paleontological resources to maximize efficiency. In accordance with GEO-3, paleontological monitoring will

be required for all initial ground-disturbing activities in undisturbed areas containing the Silverado Formation or Sespe/Vaqueros Formation and very old Quaternary Alluvium. For areas that contain younger Quaternary Alluvium (which overlie sensitive older Quaternary Alluvium), paleontological monitoring will initially be required for ground-disturbing activities that reach 5 feet below ground surface or greater.

The frequency of monitoring will be determined by ESA in consultation with IRWD and will be based on the nature and pace of the excavation activities, proximity to known resources, the materials being excavated (i.e., younger sediments versus older sediments), the depth of excavation, and, if found, the abundance and type of resources encountered. Full-time monitoring can be reduced to part-time inspections or ceased entirely if determined adequate by ESA and IRWD. The monitor will prepare daily monitoring logs that will describe construction activities observed, subsurface soil observations, and the results of the monitoring effort on a daily basis.

Assumptions:

- This task will be billed on a Time & Materials basis; if less monitoring is required, the remaining balance will not be billed. ESA has prepared costs for this task with the assumption that ground-disturbing activities that require monitoring will collectively last for 303 days per year for 3 years. The fees assume that monitoring will take place for 12 hours Monday through Friday (7 a.m. to 6 p.m., or 11 hours on-site and 1 hour of roundtrip travel time for our staff local to Irvine) and 7 hours on Saturday (9 a.m. to 3 p.m., or 6 hours on-site and 1 hour of roundtrip travel time for our staff local to Irvine). The cost for this task includes time for field data collection management and geographic information system (GIS) support.
- If excavation plans require a more intensive monitoring schedule and/or extend beyond the anticipated 303 days per year for 3 years, ESA will contact IRWD and submit an additional cost estimate to provide these additional services.

Subtask 2.4 – Conduct Inadvertent Discovery Evaluations and Prepare Treatment Plans

In compliance with MMRP Mitigation Measures CUL-3 and GEO-3 and if a substantial and potentially significant discovery during construction occurs, an ESA senior archaeologist or paleontologist will conduct a site visit to the project site to evaluate the discovery. If determined necessary, ESA will prepare a treatment plan for the resource in accordance with CEQA and the MMRP.

Assumptions:

- ESA will conduct up to four site visits by either the archaeological lead or the paleontological lead and will prepare up to two Resource Treatment Plans for either an archaeological or paleontological resource discovery. If no substantial and potentially significant discovery occurs, this task will not be carried out.
- This task does not include fees for the implementation of the treatment plans; however, see Subtask 2.5, below, for an allowance fee for these services.

Subtask 2.5 – Treatment Plan Implementation Services (Allowance)

ESA has included this task to account for treatment plan implementation services, which can include but is not limited to archaeological or paleontological data recovery excavations, paleontological sediment sampling and screening, artifact or fossil cataloging and analysis, reporting, and/or curation services. The fees for these services can vary widely and depend on the number and type of resources that are associated with the discovery. ESA has provided this task as a mechanism for IRWD to approve a fee amount quickly (at the initial proposal stage) to allow ESA to dispatch a crew to conduct field recovery excavations promptly, thus limiting any potential delay in construction near the discovery.

Assumptions:

- ESA has included an allowance fee for these services to be used on a Time & Materials basis for any number of discoveries requiring treatment up to a maximum fee of \$50,000. If the fee for these services is greater than this amount, ESA will provide IRWD with an amendment to cover the additional fees for the services.

Subtask 2.6 – Prepare Archaeological and Paleontological Monitoring Reports

In compliance with MMRP Mitigation Measure CUL-3 and GEO-3 and at the conclusion of the monitoring, ESA will prepare archaeological and paleontological monitoring reports that will discuss the methods and results

of the monitoring effort described above, including photographs and soil/sediment and stratigraphy descriptions, as appropriate. The reports will address whether or not potentially significant resources were encountered during the monitoring effort and include the daily monitoring logs in an appendix to the report.

Assumptions: ESA will prepare negative findings/discoveries reports. If archaeological or paleontological resources are encountered during the monitoring effort that require additional discussion in the reports, ESA will contact IRWD and submit an additional cost estimate to provide these out-of-scope services.

Deliverable: One electronic version of the draft and final archaeological and paleontological monitoring reports (daily monitoring logs to be provided in an appendix to this report).

Task 3. Project Management

ESA will coordinate with IRWD, project engineers and consultants, the CM team, construction supervisors and crews, regulatory agencies (e.g., CDFW) and the internal ESA team as needed to ensure compliance with permit conditions. Prior to the project commencing, ESA will coordinate with IRWD on preferred communication protocols with CDFW, the CM team, and contractors. This task includes internal coordination and interfacing with IRWD in preparation for and throughout the monitoring effort. ESA will coordinate with CDFW to secure approval for additional designated biologists and biological monitors as defined in the ITP and LSAA, if needed, as well as to provide notifications required for compliance with the ITP and LSAA (e.g., reporting requirements, invasive species observations, wildlife injuries/mortalities, non-compliances). For any potentially sensitive issues, ESA will coordinate first with IRWD prior to any notifications to CDFW.

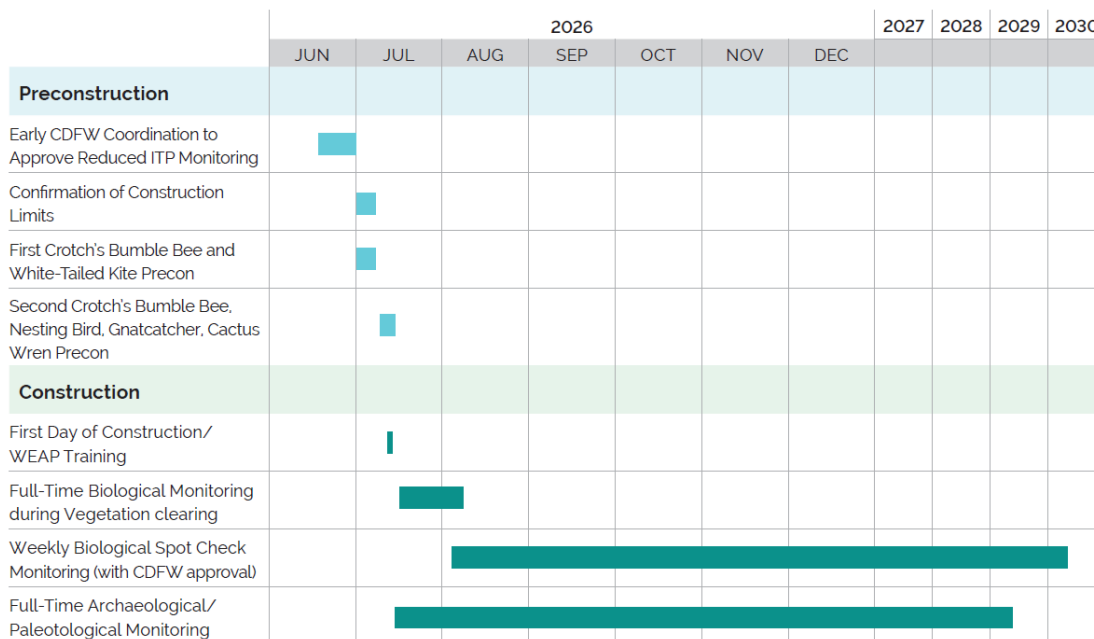
Assumptions: This task assumes attendance at kickoff and progress meetings and weekly coordination with the CM team on-site. This task also includes time for three site visits per year, for 3 years, for the archaeological and paleontological leads.

Cost Estimate

Per the Request for Proposals (RFP), ESA has submitted the budget proposal, including fee schedules and breakdown of the fee by task, separately from this project proposal.

Schedule

ESA has provided our proposed schedule on the right for the environmental compliance monitoring work for the Syphon Reservoir Improvement Project.



SECTION 2: TEAM

Key Personnel

ESA has provided environmental services to IRWD since 2009 and on the Syphon Reservoir Improvement Project since 2018. The staff selected to deliver the environmental compliance monitoring services have an extensive portfolio of experience supporting IRWD with environmental compliance for various phases of this project: from CEQA planning and environmental review to permitting and construction monitoring. Over the past 15 years, we have built a relationship with IRWD that is founded on trust and mutual respect, consistently reinforcing our commitment through successful project execution. Our partnership thrives on open communication and shared values, ensuring that each project meets its goals with precision and excellence. ESA understands IRWD is looking for an environmental compliance consultant who thinks like an owner; ESA is poised to take on this responsibility to act with IRWD's best interest as environmental manager while the project's construction unfolds.

ESA has selected the proposed team based on continuity, technical expertise, exemplary qualifications, location, and availability. Our proposed key personnel, including the project manager, technical leads, and majority of the support staff, have worked on the Syphon Reservoir Improvement Project since 2018. They are not only equipped with an intimate knowledge and understanding of the project's key issues as it relates to biological and cultural resources, but they are also deeply familiar with IRWD's priorities, policies, and procedures.

- Our proposed project manager and biological resources lead, **Maile Tanaka**, prepared the biological technical report for the Syphon Reservoir Improvement Project and the Syphon Reservoir Geotechnical Investigations Project, which analyzed the project's consistency with the County of Orange Central and Coastal Subregion Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP). She also was the lead biologist who conducted and coordinated multiple years of focused surveys for special-status floral and faunal species in support of the Syphon Reservoir Improvement Project, coordinated with U.S. Fish and Wildlife Service (USFWS) and CDFW, and oversaw the biological monitoring conducted in compliance with the project's MMRP and permit during implementation of the geotechnical work. Maile also coordinated with USFWS and CDFW regarding implementation of NCCP/HCP Construction-Related Minimization Measures. Given Maile's familiarity with this project, having been involved in various phases of it, IRWD can trust that Maile is the ideal candidate to successfully lead the environmental compliance monitoring phase to completion.
- Maile will be supported by Project Director **Sarah Spano** and Strategic Advisor **Scott Holbrook**. Sarah has worked for IRWD on CEQA compliance for the past 10 years, notably on the Stockdale West Integrated Banking Project EIR, the Syphon Reservoir Geotechnical Investigations Project MND, and the Syphon Reservoir Improvement Project EIR and three subsequent CEQA Addenda. Sarah is currently managing several large environmental compliance projects for water districts, including Palmdale Water District's Palmdale Ditch Project and Eastern Municipal Water District's (EMWD's) Wine Country Sewer and Mead Valley Good Hope Water Improvements Project, where she manages a large team of field biologists, archaeologists, and tribal entities. Sarah understands IRWD's expectations, particularly around schedule management, and she will use this knowledge and her skills managing compliance projects to support the monitoring phase of the project. In his role serving IRWD as a principal biologist, Scott accumulated a deep and comprehensive familiarity with the project site and the applicable permit conditions and mitigation requirements. He has had a lead role on many biological technical reports and project permitting efforts, and has been directly involved during the entire evolution of the upland and riparian habitat mitigation packages. Scott continues to provide key support and leadership for mitigation planning and implementation, as well as ongoing agency coordination, making him well positioned to serve as a strategic advisor for the compliance monitoring phase of this project.
- As depicted in the organizational chart below, our other technical leads include **Kyle Garcia** for archaeological resources and **JD Stewart, PhD**, for paleontological resources. Kyle and Dr. Stewart have

worked together on more than 50 archaeological and paleontological construction monitoring projects in Southern California. Kyle is an Orange County–certified and Secretary of Interior–qualified archaeologist and has recently conducted subsurface archaeological test excavations at one of the cultural resources at the Syphon Reservoir site as part of the Syphon Reservoir Improvement Project Design Refinements (EIR Addendum No 3). Given this experience, Kyle has a commanding knowledge of the cultural resources within the Syphon Reservoir site and the mitigation measures from the MMRP for the project. Moreover, Kyle has successfully completed more than 30 construction monitoring projects while working alongside Tribal monitors from the Gabrieleño Band of Mission Indians – Kizh Nation and will therefore be able to effectively assist IRWD with their consultations with the Tribe regarding monitoring activities and treatment measures for Native American cultural resources should they be encountered during construction of the project. As an Orange County resident who lives near the Syphon Reservoir site, Kyle can respond rapidly and be on-site promptly in the event significant resources are encountered that need evaluation by a qualified archaeologist in accordance with the MMRP (see Subtask 2.4 in the Scope of Work section above). Kyle’s location and commitment to availability reduces the potential for construction delays. Dr. Stewart is an Orange County–certified and Society of Vertebrate Paleontology–qualified paleontologist, and he supervised paleontological construction monitoring during the Syphon Reservoir Geotechnical Investigations Project. Given this experience and many others in the region with similar geologic conditions, Dr. Stewart has a strong understanding and knowledge of the sediments at the Syphon Reservoir site, the types of fossils that would be encountered in those sediments, and the key issues from the MMRP.

→ Kyle and Dr. Stewart will be supported by cross-trained archaeological and paleontological monitors; this will allow IRWD to meet both archaeological and paleontological monitoring requirements in the MMRP with a single individual monitor (as opposed to having two separate monitors), which will result in cost savings to IRWD. For biological resources, our monitors consist of CDFW-approved designated biologists and biological monitors. Our deep bench of specialists ensures that ESA can maintain responsiveness and provide expedited service.

ESA understands that any substitution, addition, or reassignment of any key personnel assigned to the project shall not occur without prior written approval from IRWD. The matrix below (Table 2-1) summarizes the relevant experience of the proposed project manager and support staff in relation to the RFP scope of services. The table also identifies the anticipated level of effort for each team member. Resumes for ESA’s key personnel, which contain their specific experience, certifications, accreditation, and capabilities, are provided in **Appendix A**.

Table 2-1: Staff Experience & Time Contribution

STAFF NAME & TIME CONTRIBUTION	Project Name								
	IRWD Syphon Reservoir Improvement Project	Saddle Crest Project	Palmdale Water District Palmdale Ditch Project	U.S. Army Corps of Engineers Santa Ana River Mainstem Projects	California Department of Water Resources Lake Perris Emergency Release Facility Project	IRWD San Joaquin Marsh Operating Guidelines and Resource Management Plan	Eastern Municipal Water District Mitigation and Reporting Program for Wine Country Sewer Project	Orange County Sanitation District P2-128 South Perimeter Wall Monitoring	Los Angeles Department of Water and Power North Haiwee Dam No.2 Project
Maile Tanaka, Project Manager <i>Contribution: 50%</i>	◆	◆				◆	◆		
Sarah Spano, Project Director <i>Contribution: 30%</i>	◆		◆		◆		◆		
Scott Holbrook, Strategic Advisor <i>Contribution: 10%</i>	◆	◆		◆		◆			
Kyle Garcia, MA, RPA, Archaeological Resources Lead <i>Contribution: 30%</i>	◆	◆				◆		◆	
JD Stewart, PhD, Paleontological Resources Lead <i>Contribution: 20%</i>	◆					◆		◆	◆
Fatima Clark, Deputy Archaeological/Paleontological Technical Lead <i>Contribution: 30%</i>	◆	◆			◆	◆	◆		◆
Adrienne Lee, Biological Monitor <i>Contribution: 20%</i>	◆								
Brennan Mulrooney, Biological Monitor <i>Contribution: 20%</i>	◆			◆	◆				
Douglas Gordon-Blackwood, Biological Monitor <i>Contribution: 20%</i>	◆	◆		◆	◆				
Dillon Travis, PhD, Biological Monitor <i>Contribution: 30%</i>	◆								

STAFF NAME & TIME CONTRIBUTION	Project Name								
	IRWD Syphon Reservoir Improvement Project	Saddle Crest Project	Palmdale Water District Palmdale Ditch Project	U.S. Army Corps of Engineers Santa Ana River Mainstem Projects	California Department of Water Resources Lake Perris Emergency Release Facility Project	IRWD San Joaquin Marsh Operating Guidelines and Resource Management Plan	Eastern Municipal Water District Mitigation and Monitoring and Reporting Program for Wine Country Sewer Project	Orange County Sanitation District P2-128 South Perimeter Wall Monitoring	Los Angeles Department of Water and Power North Haiwee Dam No.2 Project
Michelle Gonzalez, Biological Monitor <i>Contribution: 30%</i>	◆		◆	◆	◆		◆	◆	
Brian Rawles, Biological Monitor <i>Contribution: 20%</i>			◆		◆		◆		
Anna Weber, Biological Monitor <i>Contribution: 20%</i>	◆		◆	◆	◆		◆		
Amanda French, Biological Monitor <i>Contribution: 20%</i>	◆				◆		◆		
Brandon Jones, Biological Monitor <i>Contribution: 50%</i>	◆		◆	◆	◆				
Robin Hutchinson, Biological Monitor <i>Contribution: 20%</i>					◆				
Kennedy Balderas, Archaeological/Paleontological Resources Monitor <i>Contribution: 50%</i>								◆	◆
Parker Reece, Archaeological/Paleontological Resources Monitor <i>Contribution: 50%</i>					◆		◆		◆
Natalie Chamberlain, Archaeological/Paleontological Resources Monitor <i>Contribution: 50%</i>					◆		◆		◆
Joel Aspeytia, Archaeological/Paleontological Resources Monitor <i>Contribution: 50%</i>	◆	◆	◆		◆		◆		◆

Project Management

Proactive communication and collaborative problem solving is integral to project success. Through efficient and continued communication, including well-established roles and responsibilities and clear lines of communication among staff, IRWD, the CM team, and the construction contractor, IRWD will always know the project status and any potential challenges on the horizon regarding project implementation.

ESA understands that the key to success on this project is maintaining the project schedule so that construction can proceed without delay while keeping the project in compliance with environmental requirements. Our project management qualifications on large-scale environmental compliance projects allow us to engage in the right amount of coordination internally and with IRWD, the CM team, and construction contractor staff to keep the project on schedule. Our key team members have worked together on numerous projects to achieve successful outcomes for clients. Sarah Spano, project director, has worked for more than 2 years with Maile Tanaka as biological resources lead on the EMWD Wine Country Sewer and EMWD Mead Valley and Good Hope Water Improvement Projects, both large-scale water infrastructure projects in Riverside County. Maile and Sarah have diligently coordinated with internal and external teams from early agency coordination through project implementation, adapting to changing conditions and challenges as they arise. Maile Tanaka and Kyle Garcia have worked together on over 20 projects involving biological and cultural resources implementation within Orange County, and they are well accustomed to coordinating staff and resources from project implementation through completion. And of course, Maile, Scott, Sarah, and Kyle have all worked together for more than 8 years on phases of the Syphon Reservoir Improvement Project. The historic collaboration of our staff leaders in managing projects together will allow ESA to be an extension of IRWD staff, anticipating challenges and working together to find solutions.

Organizational Chart

The organizational chart on the right demonstrates the relationship between ESA's staff members and the responsibilities of those who would work on this contract. The chart indicates the names of key personnel and their roles on the project.



SECTION 3: REFERENCES

ESA's Biological Resources, Cultural Resources, and Water teams bring extensive experience delivering construction-phase environmental compliance and monitoring services for water agencies throughout Southern California. Our project managers routinely lead large, multidisciplinary compliance programs, coordinating field teams, regulatory agencies, and contractors to ensure adherence to permit conditions and mitigation requirements. The following project summaries

highlight the proposed team’s experience performing biological, cultural, and restoration monitoring; managing regulatory compliance; and supporting successful construction implementation on comparable water infrastructure projects. Client references that may be contacted by IRWD are provided for each project.

IRVINE RANCH WATER DISTRICT

Syphon Reservoir Improvement Project

Description of Work: ESA conducted comprehensive surveys for biological and cultural resources on the Syphon Reservoir Property and prepared various technical reports, including mapping of habitat types and potential jurisdictional areas on-site. ESA secured an Approved Jurisdictional Determination (AJD) from USACE in 2018 and worked with IRWD in 2023 to get a new AJD after the first expired. We prepared the Initial Study/MND for geotechnical work (cert. June 2019) and worked with IRWD to obtain the Lake and Streambed Alteration Agreement (LSAA) from CDFW for that activity in under 1 year. ESA then coordinated with IRWD and the project geologist, performed biological and cultural monitoring, and submitted compliance reports for the geotechnical investigations. ESA prepared the Syphon Reservoir Improvement Project EIR (cert. 2021) and supporting technical documentation and helped formulate the mitigation measures for the project. Since 2024, ESA also prepared three CEQA Addenda to the EIR that evaluated 1) the off-site mitigation parcel, 2) potential effects on Crotch’s bumble bee, and 3) project design refinements and associated biological resources impact updates.

Since 2018, ESA has worked closely with IRWD and met frequently with USFWS and CDFW, first to identify and evaluating potential sites for off-site acquisition and habitat mitigation, and then to develop the upland and aquatic resources mitigation packages, including on-site and off-site habitat restoration plans. The mitigation packages, now agency-approved, address the project’s effects on the NCCP/HCP Reserve, associated special status species (e.g., California gnatcatcher, least Bell’s vireo), as well as Mitigation Grant Deed restrictions. We prepared various PowerPoint presentations and attended more than 20 meetings with IRWD and the wildlife agencies to resolve questions and work through mitigation designs, regulatory permitting, and NCCP requirements. ESA prepared the application for an Incidental Take Permit (ITP) for Crotch’s bumblebee, which CDFW issued in December 2025. Also, CDFW just issued the final LSAA for the project after considerable challenges and extended negotiations that ESA worked through with IRWD. In January 2026, ESA’s agency-approved designated biologists and biological monitors observed and reported on vegetation removal from specific areas on-site in compliance with the project’s MMRP, LSAA, and ITP.

Project Dates: 2/2018–Ongoing

Reference: Fiona Nye, Director of Water Resources, nye@irwd.com, 949-453-5325

SADDLE CREST, LLC

Saddle Crest Project

Description of Work: ESA’s interdisciplinary team provided biological and cultural surveys, CEQA documentation, permitting services, biological and cultural compliance monitoring, restoration design and implementation, and mitigation monitoring for the 114-acre Saddle Crest residential development in inland Orange County. Prior to project construction, ESA completed the project’s CEQA documentation; secured regulatory permits from the CDFW, USACE, and Regional Water Quality Control Board (RWQCB); and assisted the client in obtaining various County and regulatory agency approvals required for the project to commence. ESA conducted pre-project surveys and provided WEAP trainings for biological, cultural, and paleontological resources to inform contractors about the sensitive environmental resources on-site. Over multiple years, ESA provided biological and cultural compliance monitoring and reporting during project construction and coordinated with the client, County of Orange, and regulatory agencies to ensure MMRP and permit compliance. ESA also prepared the Habitat Mitigation and Monitoring Plan, Sensitive Natural Communities Mitigation Plan to restore native upland scrub and grassland habitat, and Special-Status Plant Mitigation Plan to reestablish two rare plant populations. Restoration was implemented within a nearby 300-acre Saddle Creek conservation area. ESA biological monitors collaborated with construction crews to avoid sensitive

biological resources and with restoration contractors to salvage special-status plants for relocation to the off-site mitigation area. Before and during construction, ESA biologists trapped and relocated woodrats and directed the salvage of special-status plants, including more than 6,000 succulents, hundreds of lily bulbs, and large quantities of prickly pear cactus. ESA biologists worked closely with restoration contractors during mitigation implementation and maintenance, conducted monitoring via annual vegetation transect surveys, provided adaptive management recommendations, and coordinated with agencies on long-term management planning, conservation easements, and final regulatory agency and County of Orange sign-off.

Project Dates: 3/2016–10/2025

Reference: Jay Rutter, President, jrutter@rutterdevelopment.com, 949-863-1298

PALMDALE WATER DISTRICT

Palmdale Ditch Project

Description of Work: ESA is currently supporting Palmdale Water District on the Palmdale Ditch Compliance Monitoring effort by providing construction-phase environmental compliance services that integrate project management, pre-construction readiness, field monitoring, and regulatory reporting. The project involves installation of a large-diameter 8-mile pipeline to replace an earthen water conveyance ditch that was losing water to seepage. In advance of October 2025 construction, ESA initiated pre-construction evaluations and notifications, including preparation of a Cultural Resources Monitoring Plan to define monitoring protocols, unanticipated discovery procedures, and roles and responsibilities, as well as submitting required pre-construction notifications to wildlife agencies consistent with permit conditions. During construction, ESA is providing WEAP trainings for biological, cultural, and paleontological resources as new crews work on segments of the project pipeline, conducting biological resources monitoring to ensure compliance with mitigation measures and permit conditions for special-status species, and providing cross-trained archaeological and paleontological monitoring during all ground-disturbing activities. ESA has also been coordinating tribal monitoring for three designated tribal groups who provide rotation-based monitoring for the client. To manage all technical disciplines and coordinate scheduling, ESA participates in weekly construction meetings with the client and contractor to ensure MMRP and permit conditions are addressed prior to and during construction.

Project Dates: 8/2025–Ongoing

Reference: Shadi Bader, Engineering Manager, sbader@palmdalewater.org, 661-607-8186

U.S. ARMY CORPS OF ENGINEERS

Santa Ana River Mainstem Projects

Description of Work: Since February 2022, under subcontract to Tetra Tech, ESA has performed environmental compliance monitoring and provided extensive assistance with habitat restoration planning and implementation for five separate projects in the Prado Basin and Reach 9 of the Santa Ana River. Our select team of biologists and restoration specialists continue to monitor each project and maintain compliance with specific conditions and mitigation measures established to protect wildlife and aquatic resources in multiple NEPA/CEQA analyses prepared since 2001 and refined for each project as designs were refined. Each project is subject to various permits conditions pertaining to jurisdictional waters and conservation measures issued in project-specific Biological Opinions to protect federally listed species including Santa Ana sucker and least Bell's vireo. The sheer number of requirements, including many modified due to design changes and shifts in conservation priorities, add complexity to the compliance monitoring. Effective and timely communication has been a vital part of our work. ESA has conducted extensive field monitoring, including weekly noise monitoring during each breeding season, and verified project effects with handheld GPS devices and GIS mapping software. ESA monitors uploaded daily logs of observations and prepared weekly, quarterly, and annual reports covering each separate project in accordance with permit conditions. As project work progressed, change management required reassessment of effects and revising or refining mitigation requirements at the project level. ESA contributed information

and recommendations that aided the responsible parties with making reasonable and cost-effective adjustments in various situations.

Project Dates: 2/2022–Ongoing

Reference: Hayley Lovan, Ecosystem Planning Section Chief, hayley.j.lovan@usace.army.mil, 213-453-3163

CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)

Lake Perris Emergency Release Facility Project

Description of Work: ESA prepared the EIR for the Lake Perris Emergency Release Facility Project, which was certified in 2019. The project modifies the existing emergency release structure and includes construction of a water conveyance facility connecting to the Perris Valley Channel. ESA also prepared the Restoration Plan, successfully obtained resource and wildlife agency permits, and coordinated with agencies such as CDFW, USFWS, USACE, RWQCB, Western Riverside County Regional Conservation Authority, and Riverside County Habitat Conservation Authority. In 2024 and 2025, the ESA team supported project design and construction by ensuring compliance with the Stephens' Kangaroo Rat (SKR) HCP and Western Riverside County Multiple Species HCP (MSHCP) and performed preconstruction and construction-phase biological and cultural resources monitoring, stormwater monitoring, and small mammal trapping. ESA implemented species-specific compliance measures for special-status resources, including burrowing owl, coastal California gnatcatcher, least Bell's vireo, Los Angeles pocket mouse, SKR, and vernal pool branchiopods through focused surveys, pre-construction clearances, monitoring, permitting, and agency coordination. Following the discovery of coastal California gnatcatcher, ESA led the expedited pursuit of Participating Special Entity status under the MSHCP, preparing the Consistency Analysis and Determination of Biologically Equivalent or Superior Preservation documents, and obtaining a Certificate of Inclusion under the MSHCP. This proactive approach, working relationship with local regulators, and understanding of the local regulatory requirements allowed the project to proceed seamlessly while remaining in full regulatory compliance, with ESA continuing to provide strategic permitting support to satisfy all permit conditions. ESA is currently under contract to perform biological, archaeological, and paleontological resources monitoring during construction through 2027, as well as project restoration through 2033.

Project Dates: 2/2013–Ongoing

Reference: Sarah Cannon, Environmental Coordination Section Manager, sarah.cannon@water.ca.gov, 916-882-2829

CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)

Oroville Spillway Emergency Response & Recovery Project

Description of Work: DWR's Oroville Dam Spillway and Emergency Spillway were severely damaged during storms in 2017. Since then, ESA has been supporting DWR with emergency response, recovery, and restoration of oak woodland habitat. Shortly after the incident, DWR quickly mobilized repairs and brought on ESA to assist with cultural and biological resources protection during construction. Following spillway construction, ESA prepared construction documents to support DWR's efforts to rehabilitate soils and restore native vegetation to the disturbed hillslopes. ESA is supporting DWR with Federal Energy Regulatory Commission (FERC) compliance. ESA prepared planting and irrigation plans for bidding and construction that is scheduled to begin in 2026. During the emergency response, ESA provided daily on-the-ground technical support, on-site office staff to coordinate field logistics, and senior staff to assist DWR in its documentation and reporting. This included Tribal consultation, coordination with state and federal agencies, and emergency permitting support. ESA's teams of archaeologists and Native American representatives assessed and monitored installation of protection measures for 150 archaeological sites. In addition, ESA biology staff conducted biological resources and water quality monitoring, including spot checks, preconstruction surveys, and active construction monitoring, focusing on sensitive resources such as the Feather River in the Diversion Pool, tributary waterways, oak woodlands, nesting birds, mammals, and reptiles.

Project Dates: 2/2017–Ongoing

Reference: Sarah Cannon, Environmental Coordination Section Manager, sarah.cannon@water.ca.gov, 916-882-2829

SECTION 4: SCHEDULE

ESA has considered our current and planned workload based on the proposed schedule and affirms that we have the ability to complete all work requested in the RFP scope of services.

SECTION 5: BUDGET

Per the RFP, ESA has submitted the budget proposal, including fee schedules and breakdown of the fee by task, separately from this project proposal.

SECTION 6: JOINT VENTURE

ESA does not have any joint venture and/or proposed subcontract arrangements that would be used during the course of the project.

SECTION 7: CONFLICT OF INTEREST

ESA affirms that personal or organizational conflicts of interest prohibited by law do not exist.

SECTION 8: INSURANCE

ESA has provided in **Appendix B** a submittal from our insurance carrier regarding ESA’s professional liability coverage as required in Exhibit “D,” Insurance, as shown in the sample Professional Services Agreement.

SECTION 9: CONTRACT

ESA has provided in **Appendix C** our proposed modifications to the standard terms and conditions of IRWD's sample professional service agreement. ESA understands that IRWD will consider our proposed modifications during consultant selection and retains the right to reject any portion of the proposed modifications.

A large, white, sans-serif capital letter 'A' is centered on a dark blue rectangular background. The letter is positioned in the lower right quadrant of the blue area.

Resumes



Maile Tanaka

Project Manager / Biological Resources Lead



EDUCATION

MS, Environmental Science & Management, UC Santa Barbara

BS, Organismic Biology, Ecology & Evolution, UC Los Angeles

20 YEARS' EXPERIENCE

SPECIALIZED TRAINING

Rattlesnake Handling and Relocation Training, 2020

Introduction to Plant Identification & Ecology, UCR Extension, 2018

Snowy Plover Survey Training, Sea & Sage Audubon Society, 2015

Helicopter Flight/Safety Training, Burns & McDonnell, 2015

Desert Tortoise Council Annual Symposium, 2014

Southwestern Willow Flycatcher Survey Training Workshop, Southern Sierra Research Station, 2013

Maile Tanaka has 20 years of experience in the field of consulting biology. She is a skilled project manager possessing the technical expertise, on-the-ground field experience, and talent for detailed organization and effective communication necessary for a successful leader. Her professional experience includes general biological assessments, focused surveys for special-status species, jurisdictional delineations, mitigation monitoring, and construction monitoring throughout Southern California. Maile has extensive experience in preparing technical biological resources assessments in accordance with California Environmental Quality Act (CEQA) guidelines, compliance reporting to satisfy permit requirements, and is well-versed with the requirements of the Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). She has performed literature reviews, California Natural Diversity Database (CNDDDB) database searches, historic aerial analyses, impact analyses, NCCP/HCP consistency analyses, developed mitigation recommendations, overseen mitigation implementation and monitoring programs, and prepared permit applications and compliance documents for regulatory agencies (i.e., U.S. Army Corps of Engineers [USACE], U.S. Fish and Wildlife Service [USFWS], California Department of Fish and Wildlife [CDFW], and Regional Water Quality Control Board [RWQCB]).

Maile has conducted construction monitoring for numerous projects in Los Angeles, Orange, and Riverside counties to ensure impacts to sensitive biological resources are avoided. She has conducted Worker Environmental Awareness Program (WEAP) trainings for construction contractors and worked with crews to avoid protected and sensitive biological resources. Maile has also managed teams of biological monitors, coordinated with project teams (e.g., clients, engineers, and other consultants), and documented compliance with mitigation measure and permit conditions per project-specific reporting requirements for lead agencies and regulatory agencies.

Relevant Experience

Irvine Ranch Water District, Syphon Reservoir Improvement Project, Orange County, CA. Lead Biologist. Maile served as the lead biologist and conducted vegetation mapping, and surveys for special-status plants and least Bell's vireo. She also coordinated numerous focused surveys for the project, including a jurisdictional delineation, and surveys for western pond turtle, spadefoot toad, least Bell's vireo, and southwestern willow flycatcher. Maile prepared the CEQA-level biological resources technical report and EIR Biological Resources section. She also coordinated with the project team, including Irvine Ranch Water District staff, engineers, and attorneys, as well as with regulatory agencies to address legal restrictions on the property and to negotiate mitigation. During the preliminary geotechnical investigations project, Maile conducted the WEAP training for construction contractors, oversaw a field team of biological monitors to document compliance with the project-specific mitigation measures and permit conditions, and worked with crews to avoid protected and sensitive biological resources. She also



Maile Tanaka (Continued)

Project Manager / Biological Resources Lead

mapped potential restoration areas and broadcast native coastal sage scrub seed mix over the temporary disturbance areas for which monitoring is currently ongoing.

Irvine Ranch Water District, San Joaquin Marsh, Irvine, CA. *Lead Biologist.* The approximately 300-acre San Joaquin Marsh is one of the largest inland freshwater marsh systems in Southern California. Maile collaborated with ESA's Environmental Hydrology team to prepare the San Joaquin Marsh Operating Guidelines and Resource Management Plan. The plan recommends key objectives to remove pollutants, support native freshwater marsh and riparian habitats, allow vector control access, reduce flooding risk, maintain a monitoring program, and establish an adaptive management plan.

Santiago Saddle Crest LLC, Saddle Crest Project, Orange County, CA. *Project Manager/Lead Biologist.* Maile served as the project manager and lead biologist for the proposed 114-acre Saddle Crest residential development, a highly opposed project set in a tight-knit rural community in unincorporated Orange County. The project was further complicated by the passage of time from the performance of initial biological studies, plus the client's desire for comprehensive analysis for two project alternatives with competing philosophies. One alternative explored a development plan consistent with the area's Specific Plan but with a greater impact, while the second alternative provided a "better biology" alternative with minimized impacts but inconsistent with the Specific Plan. Maile effectively managed the analysis of two parallel projects, requiring detailed organization skills. As lead biologist, she performed sensitive plant surveys, a jurisdictional delineation, vegetation map verification/update, and prepared the update to the CEQA-level biological resources assessment. Beyond her technical contributions, she attended meetings and a planning commission hearing with the County of Orange on behalf of the project. The project was approved by the County of Orange. ESA also obtained resource agency permits under Sections 401 and 404 of the Clean Water Act and Section 1602 of the California Fish and Game Code. Maile prepared a Habitat Mitigation and Monitoring Plan (HMMP) that was approved by the resource agencies, and managed permit compliance and agency coordination for the project. During project construction, she effectively managed a team of biological monitors as well as performed nesting bird pre-construction surveys and construction monitoring. She also coordinated directly with the restoration contractor for the salvage of special-status plants, which included intermediate mariposa lily bulbs that were flagged by ESA during the blooming period, to be transplanted to the mitigation site. Maile coordinated with ESA restoration ecologists and the restoration contractor to oversee the successful completion of the 5-year monitoring period for the mitigation, which included conducting monitoring site visits, annual vegetation transects, and providing adaptive management recommendations for the riparian, coastal sage scrub, and grassland mitigation areas.

EMWD, Wine Country North and South Sewer Projects, Temecula and Unincorporated Riverside County, CA. *Lead Biologist.* ESA is assisting EMWD with biological resources Mitigation Monitoring and Reporting Program (MMRP) implementation for this sewer pipeline project. Maile assisted EMWD with USFWS coordination to develop protection measures for Stephens' kangaroo rat and served as lead biologist to oversee coordination of preconstruction survey (for burrowing owl, least Bell's vireo, and nesting bird) and biological monitoring.

Big Ben Engineering, Inc., Irvine Regional Park Drainage Improvement Project, Orange County, CA. *Lead Biologist.* Maile served as the lead biologist for an Orange County Public Works and Orange County Parks drainage improvement project within Irvine Regional Park and the OC Zoo. Maile and her team conducted nesting bird surveys, pre-construction surveys for the coastal California gnatcatcher and coastal cactus wren, provided WEAP trainings, and biological monitoring to avoid impacts to special-status species, including the coastal California gnatcatcher and least Bell's vireo.

Sarah Spano

Project Director



EDUCATION

BA, Anthropology/
Archaeology, New York
University, Magna Cum
Laude

Water Education
Foundation (WEF) Water
Leaders Program
Graduate, 2018

15 YEARS' EXPERIENCE

PROFESSIONAL AFFILIATIONS

Association of
Environmental
Professionals

AWARDS

Association of
Environmental
Professionals
Environmental Analysis
Document, Merit Award,
for the PG&E Topock
Compressor Station Soil
Investigation Project EIR

Sarah Spano is the Director of ESA's Southern California Water Group, where she oversees project delivery and business development for ESA's work in the Southern California water market. With 15 years of experience, she prepares CEQA documentation and coordinates environmental review for a variety of complex water and wastewater projects. Sarah also had led large-scale environmental compliance projects for water infrastructure projects, coordinating a diverse team of monitors to implement mitigation and permit conditions throughout construction. She is currently the contract manager for ESA's on-call CEQA/NEPA contract with Irvine Ranch Water District (IRWD), where she manages ESA's technical and subconsultant team, tracks project schedules and milestones, and ensures timely and accurate transmission of deliverables.

Relevant Experience

IRWD, Syphon Reservoir Improvement Project CEQA-Plus EIR and Geotechnical Investigations Project IS/MND, Orange County, CA. *Deputy Project Manager.* Sarah helped to manage the EIR process for the expansion of the Syphon Reservoir as well as an IS/MND for geotechnical work to determine the design of the dam. Sarah also managed an three CEQA Addenda tiering from the EIR to evaluate impacts of an off-site restoration site, updates to biological resources, and design modifications. ESA provided extensive biological surveys and cultural surveys, assisted IRWD with AB52 process for Tribal consultation, facilitated coordination with USFWS and CDFW for mitigation associated with the Orange County Central/ Coastal NCCP/HCP and applicable Grant Deed restrictions for the site, obtained a Jurisdictional Determination from the USACE, and a Streambed Alteration Agreement with CDFW. IRWD adopted the Initial Study/MND for the Geotechnical Investigations in June 2019. The Reservoir Expansion Draft EIR was certified in 2021.

IRWD, As-Needed CEQA/NEPA Services, Orange County, CA. *Contract Manager.* Sarah is the contract manager for ESA's on-call CEQA/NEPA services contract with IRWD. Sarah's responsibilities include ensuring that our services meet IRWD's expectations and are in compliance with federal, state, and local regulations. Sarah provides basic oversight of services, quality control, strategic support, and CEQA management. Through this contract Sarah managed three CEQA Addenda stemming from the Syphon Reservoir Improvement Project.

IRWD, Stockdale West Joint Banking Project, Kern County, CA. *Deputy Project Manager.* Sarah provided technical expertise on the Draft EIR, including Aesthetic, Agriculture and Forestry Resources, Land Use, and Utilities. Sarah also provided support for project and schedule management. The proposed project would augment the recharge and extraction capacity of the Rosedale Conjunctive Use Program and provide greater operational flexibility. The proposed project would also enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.



Sarah Spano (Continued)

Project Director

IRWD, Biosolids Handling and Energy Recovery Project EIR, Irvine, CA. *Technical Analyst.* Sarah was involved with compiling chapters of the Draft EIR. This involved response to client comments and conducting research on biosolids. IRWD would construct new facilities at the Michelson Water Recycling Plant to process biosolids onsite rather than sending them to Orange County Sanitation District for processing and disposal. The project would produce Class A pelletized biosolids that could be reclaimed for beneficial use as a fertilizer or biofuel. The project also would capture biogas during the anaerobic digestion process to be used to generate electricity at an onsite fuel cell power plant.

Palmdale Water District, Palmdale Ditch Environmental Construction Compliance, Los Angeles County, CA. *Project Manager.* ESA is currently supporting Palmdale Water District on the Palmdale Ditch Compliance Monitoring Project by providing construction phase environmental compliance services that integrate project management, pre-construction readiness, field monitoring, and regulatory reporting. Sarah, as project manager, is leading a team of 10 technical specialists to oversee mitigation measure implementation for the project. In advance of October 2025 construction, ESA initiated pre-construction evaluations and notifications, including preparation of a Cultural Resources Monitoring Plan to define monitoring protocols, unanticipated discovery procedures, and roles and responsibilities, and issued required pre-construction notifications to wildlife agencies consistent with permit conditions. During construction, ESA is providing Worker Environmental Awareness trainings for biological, cultural, and paleontological resources as new crews work on the project, conducting biological resources monitoring to ensure compliance with mitigation measures and permit conditions for special-status species, and providing cross-trained archaeological and paleontological monitoring during all ground-disturbing activities. ESA has also been coordinating tribal monitoring for three designated tribal groups who provide rotation-based monitoring for the client. To manage all technical disciplines and coordinate scheduling, ESA participates in weekly construction meetings with the client and contractor to ensure MMRP and permit conditions are addressed prior to and during construction.

Eastern Municipal Water District (EMWD), Wine Country Sewer Project Environmental Construction Compliance, Riverside County, CA. *Project Manager.* ESA is providing comprehensive biological, cultural, and paleontological services for the Wine Country Sewer Project for EMWD, conducting mitigation measure compliance monitoring in accordance with the project's MMRP. Sarah, as project manager, is leading a team of surveyors and monitors to conduct the work. The project is being implemented in two phases, with up to five crews and monitors working on distinct portions of the alignment at any given time. This effort has resulted in multiple monitoring teams tracking construction and mobilizing to portions of the project alignment as work is initiated. ESA has managed to stay ahead of the requirements at each distinct segment, coordinating various special-status specie pre-construction surveys and archaeological monitoring based on the sensitivity of soils. ESA is performing pre-construction biological surveys for Stephens' Kangaroo Rat, burrowing owl, and nesting birds and raptors, implementing avoidance and minimization measures as needed, and supporting consultation with U.S. Fish and Wildlife Service for Stephens' Kangaroo Rat. ESA is also providing full-scale daily archaeological and paleontological resources monitoring during ground-disturbing activities, which requires close coordination with EMWD staff to understand the construction schedule and when ground-disturbing impacts need to be monitored. ESA is able to provide a cross-trained archaeologist/paleontologist to achieve cost efficiencies for EMWD, and is coordinating with the tribal entities on any tribally sensitive areas and discoveries. Throughout the 1.5-year-long project, ESA's coordination with on-site construction staff to strategically scale monitoring efforts has resulted in cost savings and streamlined compliance support for EMWD. ESA also manages monthly and annual reporting for EMWD, ensuring EMWD has access to timely information for submittal to funding and regulatory partners.

Scott Holbrook

Strategic Advisor



EDUCATION

BA, Applied Ecology,
University of California,
Irvine

>30 YEARS' EXPERIENCE

PROFESSIONAL AFFILIATIONS

Society for Ecological
Restoration (SER)

Scott has over 30 years' consulting experience in biological resources, regulatory compliance, and habitat restoration. Scott understands the policies and practices of the regulatory agencies that administer the State and federal Endangered Species Acts, the California Fish and Game Code, the Clean Water Act, and the California Coastal Act. He is familiar with regional multi-species habitat conservation program requirements including the Orange County Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP/HCP). He has conducted or supervised biological surveys and mapping of plant communities, jurisdictional areas and wildlife throughout Southern California. Scott has extensive experience preparing technical documentation for California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) analyses of biological resources impacts for projects ranging from large transportation, infrastructure, utilities, and residential communities to small, private developments. He has also lead environmental compliance monitoring for complex projects with multiple permits and CEQA/NEPA mitigation requirements to protect listed species and sensitive habitats for private clients and governmental agencies.

As a restoration ecologist, Scott develops practical, cost-effective habitat mitigation and restoration plans and has directed all phases of implementation, including grading and hydrologic modifications, soil amendments, plant and seed selection, installation, maintenance, monitoring, and agency coordination leading to project approval. His experience spans desert communities, native grasslands, coastal sage scrub, oak woodlands, riparian corridors, and freshwater and tidal wetland systems. Scott also has extensive experience in invasive species management, applying integrated control methods tailored to site conditions and long-term performance goals.

Relevant Experience

IRWD Syphon Reservoir Geotechnical Investigations and Syphon Reservoir Improvement Project EIR, Orange County, CA. *Principal Biologist.* Scott contributed to development of the biological resources technical reports for both the geotechnical work and the reservoir improvement project, provided substantial input on the NCCP/HCP review and consistency determination, and provided key support and leadership for mitigation planning and agency coordination. Scott contributed to the conceptual restoration plan to provide riparian/wetland habitat mitigation off-site at the San Joaquin Marsh. He has provided leadership during all regulatory permitting efforts and worked directly with IRWD to identify impact avoidance opportunities, refine construction specifications to optimize restoration efficiencies, and develop the on-site mitigation design prepared by the Owner's engineer. Recently, Scott prepared a set of specifications to assist the construction contractor with understanding and applying permit requirements during the construction process. He also lead preparation of the Weed Management Plan and related documentation.

Scott Holbrook (Continued)

Strategic Advisor

Santa Ana Regional Interceptor (SARI) Pipeline, Orange County, CA. *Project Biologist.* Scott prepared the biological resources analysis for the Supplemental EA/EIR Addendum for the SARI Pipeline Relocation Project in Orange County. He also prepared the jurisdictional delineation and worked with project engineers to minimize impacts to waters. He assisted the project sponsors by preparing permit applications for the project's 404, 401, and 1602 approvals and drafted the Habitat Mitigation and Monitoring Plan (HMMP) to guide on-site mitigation involving streambed and riparian habitat restoration. Scott lead a team of biologists that conducted environmental compliance monitoring for the both the SARI line and the Yorba Linda Spur pipeline relocation project prior to and during the construction phase. When project plans changed that would have incurred new, unpermitted impacts he worked with the sponsors, contractors and the regulatory agencies to obtain additional permit approvals, informal agreements, and permit amendments to address refinements to construction and mitigate unforeseen impacts.

U.S. Army Corps of Engineers. Santa Ana River Mainstem Project, Orange/Riverside/San Bernardino Counties, CA. *Principal Ecologist.* Since February 2022, as a subcontractor to Tetra Tech, Scott lead a team of ESA biologist's performing construction and regulatory compliance monitoring for on four separate projects in the Prado Basin and along Reach 9 of the Santa Ana River. Environmental compliance monitoring for these projects involved maintaining compliance with mitigation measures originally established to protect wildlife and aquatic resources in the 2001 NEPA/CEQA analysis for the SARMP. Project-specific 404 and 401 permits protecting waters, and conservation measures issued by the USFWS in multiple Biological Opinions to protect Santa Ana sucker and least Bell's vireo, added complexity to monitoring and effective communication has been a vital part of the work. In addition to extensive field monitoring and assistance with verifying project effects using GPS devices and GIS mapping software, Scott's team was tasked with uploading daily logs of observations, and preparing weekly, quarterly and annual reports in accordance with permit conditions. As project work progressed, change management required reassessment of effects and revising or refining mitigation requirements at the project level in most cases. Scott prepared or supervised information submittals including recommendations for reasonable and cost-effective adjustments in various situations.

Technical Studies, Regulatory Assistance, & Habitat Restoration Services. Orange County Public Works, Orange County, CA. As a principal ecologist and senior project manager, Scott has served for more than 15 years as project leader on multiple task orders for biological surveys, technical reports, regulatory assistance and compliance monitoring. Regulatory services included permitting assistance, jurisdictional assessments, and maintaining compliance with the Orange County Natural Communities Conservation Plan (NCCP) reserve system requirements. Restoration services include developing and implementing habitat mitigation plans for individual projects, directing and/or monitoring restoration and reporting progress to regulating agencies. In 2024 - 2025, Scott directed monitoring and habitat maintenance activities by a subcontractor in a 48-acre restoration site in the Santa Ana River floodplain.

All American Asphalt Batching Plant Habitat Restoration, Irvine, CA. *Project Manager.* Scott prepared a habitat restoration plan to establish native Coastal Sage Scrub (CSS) in a previously disturbed 0.6-acre site at this industrial facility. Conditions of Approval issued by the County of Orange for proposed expansion of the available access and staging area at the plant required CSS restoration and involved coordination with the USFWS and compliance with policies regarding improvements on designated lands in the "Reserve" of the Orange County NCCP. The restoration Plan was accepted by the County of Orange and the Service and involved monitoring during construction, topsoil salvage and transfer, site preparations and seeding, and included provisions for maintenance, monitoring and documentation and established performance standards. Following plan approval, Scott directed construction monitoring, supervised topsoil salvage and redistribution, conducted seed applications and maintenance efforts.

Kyle Garcia, MA, RPA

Archaeological Resources Lead



EDUCATION

MA, Anthropology
(Archaeology Option),
California State University
Los Angeles

BA, Anthropology,
(Physical/ Biological
Emphasis), University of
California, Santa Barbara

23 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Registered Professional
Archaeologist, #4587

Secretary of Interior-
Qualified Archaeologist

Riverside County
Registered Archaeologist
#202 and Paleontologist

Orange County Certified
Archaeologist

40-Hour HAZWOPER
Training – Update, 2025

PROFESSIONAL AFFILIATIONS

Society for American
Archaeology

Society for California
Archaeology

Pacific Coast
Archaeological Society

Kyle Garcia is an Secretary of Interior-qualified and Orange County-certified archaeologist based out of ESA's Irvine office with over 23 years of experience in the archaeology and prehistory of southern California. During his career, he has contributed to more than 900 projects subject to the requirements of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and regulations implementing Section 106 of the National Historic Preservation Act (Section 106 of the NHPA). Kyle has managed more than 120 archaeological and/or paleontological construction monitoring projects in Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. He is well-versed in the archaeological resources of California's coastal, interior, and island settings. He has extensive experience assisting lead agencies through the AB 52 and SB 18 tribal consultation process with Orange County Native American groups. Kyle's portfolio of projects includes energy, water, and transportation infrastructure as well as residential, commercial, mixed-use, institutional, and urban redevelopment serving public and private sector clients.

Relevant Experience

Irvine Ranch Water District, IRWD Syphon Reservoir EIR Addendum No. 3, Irvine, CA.

Lead Archaeologist/Principal Investigator. ESA was retained by IRWD to conduct an Extended Phase I Cultural Resources Assessment (Extended Phase I) for the Project at resource CA-ORA-601 and to determine whether it qualifies as a historical resource or a unique archaeological in accordance with CEQA. Kyle lead the excavation of 15 shovel test pits (STPs) within a portion of CA-ORA-601 and the preparation of the Extended Phase I report. The STP excavations yielded very limited cultural resources (one flake and two possible debitage fragments) and the assessment indicated that CA-ORA-601 is ineligible for listing in the California Register.

Irvine Ranch Water District, Syphon Reservoir Improvement Project (SRIP) Off-Site Mitigation (SRIP Off-Site Mitigation), Irvine, CA.

Cultural/Archaeological Manager. Under contract to the IRWD and in connection with the SRIP Final Environmental Impact Report certified in 2021, Kyle managed a CEQA-level phase 1 cultural/archaeological resource assessment of an off-site mitigation area at a 33.4-acre IRWD property in the San Joaquin Marsh in Irvine, California. The proposed SRIP Off-Site Mitigation would include habitat restoration and maintenance of the property, the construction of appurtenant facilities, and the construction of a pipeline that would deliver irrigation water to the property. The assessment included a record search through the South Central Coastal Information center, a Sacred Lands file search through the Native American Heritage Commission, other archival research, and a pedestrian survey of the project site.

Orange County Water District, Groundwater Replenishment System (GWRS) Final Expansion Project, Orange County, CA.

Cultural/Archaeological and Paleontological Task Lead and Manager. Under contract to Orange County Water District (OCWD), Kyle managed archaeological and paleontological construction monitoring services during construction of the OCWD's GWRS Final Expansion Project and Orange County Sanitation



Kyle Garcia, MA, RPA (Continued)

Archaeological Resources Lead

District's (OCSD) Headworks Modification Project (P2-122) located on Plant 1 and 2 in Fountain Valley and Huntington Beach, California. These services were carried out in accordance with mitigation measures from the Mitigation Monitoring Report Program (MMRP) for the Project pursuant to the California Environmental Quality Act (CEQA). ESA also provided pre-construction Worker's Environmental Awareness Trainings to OCWD and OC SAN staff and their contractors. ESA worked alongside tribal monitors from the Kizh Nation – Gabrielino Band of Mission Indians for the duration of the project.

Orange County Water District, Santa Ana Wells 27 and 28 PFAS Water Treatment Plant Project, Santa Ana, CA. *Cultural/Archaeological and Manager.* Under contract to OCWD, Kyle managed archaeological and paleontological monitoring services during construction of the project in accordance with California Coastal Commission permit conditions. OCWD constructed a water treatment plant facility to treat PFAS contaminants near existing extraction wells (Well 27 and Well 28) located in Santiago Park in Santa Ana, California. Several pipelines were constructed to connect the two existing wells that will convey untreated flows to the treatment plant site. Numerous historic period artifacts were recovered during the monitoring effort and currently being treated in accordance with industry standards and the permit conditions.

City of San Juan Capistrano, Los Rios Park Project, San Juan Capistrano, CA. *Project Manager.* Kyle managed archaeological monitoring services for the City of San Juan Capistrano (City) during the construction and development of 5-acre Los Rios Park (Park) from 2008-09. Numerous items of modern, historic, and prehistoric age were encountered during archaeological and Native American monitoring services associated with Park development. PCR classified these items into one archaeological site (P-30-001708) and eight isolated artifacts and/or features (P-30-100126 through P-30-100133). P-30-001708 (CA-ORA-1708/H) includes 13 individual Features (Feature A through Feature M). It is apparent that the Park retains buried prehistoric artifacts, domestic, residential and ranch maintenance components and numerous subsurface features such as trash pits, privy holes, fire pits, domesticated animal refuse and similar features. These findings are consistent with the long history of prehistoric and historical-period occupation of the Los Rios Street Historic District area. Bottles identified and collected during monitoring indicate dates of use between the 1890s and 1950s. Although five isolated prehistoric resources were encountered (Feature M of P-30-001708 and P-30-100126, -100127, -100128, and -100129), the results of the archaeological monitoring effort have also confirmed the lack of intact or stratified buried prehistoric deposits or features across the Park. Kyle served as project director/manager, liaison with the City and Native American monitors, artifact sorter and analyst, and co-author of the final report.

LAX Crossfield Taxiway Improvements, Los Angeles, CA. *Project Manager/Archaeological Monitor.* Kyle performed archaeological and paleontological monitoring services during earthmoving operations associated with the development of the Crossfield Taxiway project in accordance with established mitigation measures from the LAX Crossfield Taxiway Project (CFTP) EIR. ESA conducted archaeological and paleontological field visits, paleontological sediment sampling, and monitoring of earthmoving operations associated with the construction of CFTP until activities requiring monitoring ended. These operations included excavations for filter boxes, water pipeline installation, and the realignment of World Way West. In addition to monitoring, Kyle performed an archaeology and paleontology training session for appropriate project personnel involved with construction of the project. The training session focused on how to identify archaeological and paleontological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event. No resources were identified during the monitoring effort and these findings were summarized in a report that was submitted to Los Angeles World Airports. Kyle served as project director/manager, crew chief, monitor, and co-author of the final report.

J.D. Stewart, Ph.D.

Paleontological Resources Lead



EDUCATION

PhD, Systematics & Ecology, University of Kansas, 1984

MA, Systematics and Ecology, University of Kansas

BA Degree, Biology, University of Kansas

40 YEARS' EXPERIENCE

CERTIFICATIONS/REGISTRATION

Meets Society of Vertebrate Paleontology definition of qualified professional paleontologist

Orange County Certified Paleontologist

PROFESSIONAL AFFILIATIONS

Society of Vertebrate Paleontology

Research Associate, Natural History Museum of Los Angeles County

Dr. J.D. Stewart has more than 40 years' experience in the field of paleontology, with 30 years' experience in California. He has authored or co-authored 40 peer-reviewed articles for scientific journals and books. Within these, he has authored or co-authored descriptions of three new genera and three new species. He is a recognized authority on fossil fishes of Cretaceous rocks of North America and Cenozoic rocks of the western coast of North America. As a result, Dr. Stewart is often called upon to identify paleontological and archaeological specimens. He has served as expert witness for the U.S. Department of Justice. Dr. Stewart has extensive experience finding and excavating fossils for county, state, and provincial institutions. His field work includes projects in cooperation with the U.S. Bureau of Land Management, National Parks Service, U.S. Army Corps of Engineers, U.S. Navy, U. S. Department of Energy, Federal Aviation Administration, California Energy Commission, Caltrans, and California State Parks. The Bureau of Land Management's national website features one of his excavations from 2004. Dr. Stewart has prepared and implemented multiple Paleontological Resources Impact Mitigation Plans throughout California and has supervised monitoring of construction activity in numerous California counties and municipalities. In addition to fieldwork, he has experience in the supervision of preparators, surveyors, curatorial assistants, and excavators. He also has extensive experience preparing fossils, and has processed, recovered, and identified thousands of microvertebrate fossils.

Relevant Project Experience

Syphon Reservoir Geotechnical Investigations Project, Orange County, CA. *Principal Paleontologist.* IRWD implemented the Geotechnical Investigations Project to characterize the geologic and geotechnical conditions of the Syphon Reservoir site to support the potential development of a future reservoir expansion. The Project included a combination of exploratory test pits, borings, and geophysical surveys to characterize the subsurface conditions of the soil at the Syphon Reservoir site and verified the characteristics of the Center Valley Fault. ESA provided extensive biological surveys and cultural surveys, assisted IRWD with AB 52 process for Tribal consultation. Dr. Stewart supervised paleontological monitoring during geotechnical explorations (including borings, exploratory test pits, and abutment/seismic trenches) at the Syphon Reservoir, as the project is located within geologic formations (Silverado and Sespe/Vaqueros) that have a high paleontological potential for yielding paleontological resources. Sediment sampling was conducted to identify the presence/absence of microvertebrate fossils.

Heritage Fields/Great Park Paleontological Review, Irvine, CA. *Principal Paleontologist.* Dr. Stewart conducted Phase I and II paleontological assessments at the Heritage Fields / Great Park in Orange County, California where he and his team discovered and excavated significant portions of a Miocene-aged (15 million years ago) whale fossil, and a Pleistocene microvertebrate fauna dating to before 28,000 years ago.

The Superior Avenue Pedestrian and Bicycle Bridge and Parking Lot Project, Paleontological Resource Mitigation and Monitoring Plan (PRIMP). Newport Beach,

J.D. Stewart, Ph.D. (Continued)

Paleontological Resources Lead

CA. *Paleontologist.* The Project consists of the construction of a pedestrian and bicycle bridge spanning Superior Avenue to connect a new, larger parking lot to Sunset Ridge Park, an existing 13.7-acre active park with baseball and soccer fields. The project is under construction and JD prepared the PRIMP and is supervising the paleontological resource mitigation activities.

Crestavilla Retirement and Assisted Living Community Project, Laguna Niguel, CA. *Principal Paleontologist.* Dr. Stewart supervised paleontological monitoring during the construction of a new 224-unit retirement and assisted living facility and an approximately 1,870 square-foot Spiritual Resource Center (Shepherd of the Hills Church) within a four-story structure located over a one-level subterranean parking structure. The monitoring led to the identification of a remarkable collection of vertebrate fossils, including the first record of a gulper shark (*Centrophorus*) from any Neogene sediments of coastal California and the first reported specimens of the cookie-cutter shark (*Isistius*) from the Capistrano Formation. Additionally, the project yielded the most complete fossil tuna ever found in California and it probably represents a species new to science.

Magnolia Avenue Multi-Family Development Paleontological Resources Impact Mitigation Program (PRIMP), Home Gardens, Riverside County, CA. *Paleontologist.* The Project consisted of constructing a multi-family housing complex on approximately 4.5 acres in the unincorporated Home Gardens community of Riverside County immediately northeast of the city of Corona. The project is under construction and JD prepared the PRIMP and is supervising the paleontological resource mitigation activities.

Upper Cactus Basins Paleontological Resources Impact Mitigation Plan (PRIMP), County of San Bernardino Department of Public Works, CA. *Paleontologist.* The San Bernardino County Flood Control District proposed the enhancement of three detention basins referred to as Upper Cactus Basins 3/3A, 4, and 5 in an area generally bounded by Easton Street (West Renaissance Parkway on some on-line maps), Ayala Drive, Baseline Road, and Cactus Avenue in the City of Rialto. JD was in charge of conducting the pedestrian survey for the project and compiling the PRIMP.

Salton Sea Mitigation Implementation Plan, Riverside and Imperial Counties, CA. *Paleontologist.* ESA prepared an adaptive management and monitoring plan for the Salton Sea basin for the Salton Sea Management Program, which is a partnership between the California Natural Resources Agency, DWR, and CDFW. The monitoring plan will prioritize and guide monitoring for biological resources, including avian species, fish and invertebrates, as well as water quality, hydrology, air quality, and socioeconomics. The monitoring plan will inform status and trends of resources, as well as the implementation of future habitat and dust suppression projects. JD compiled the paleontological resource mitigation and monitoring plan and prepared the team for monitoring.

California Water Service Company, Palos Verdes Peninsula Water Reliability Project, Rolling Hills Estates, CA. *Paleontologist.* ESA provided a full suite of environmental services for the Palos Verdes Peninsula Water Reliability project. The proposed project involves the construction of approximately seven miles of buried potable water pipelines and a new booster pump station to replace the current water distribution system serving the Palos Verdes Peninsula. The large 7-mile utility/infrastructure project, which crossed multiple jurisdictions, including the cities of Rolling Hills Estates and Rancho Palos Verdes, and the County of Los Angeles. JD oversaw paleontological monitoring for reaches 3 and 4 and the pump station, coordinating finds, identifying fossils, and processing the fossils at the lab.

Goetz Road Potable Water Storage Tank and Pipeline Project EIR, Riverside, CA. *Paleontologist.* ESA prepared an EIR and conducted supporting biological, archaeological, and paleontological surveys, as well as prepared visual simulations and a shade and shadow report for the Goetz Road Potable Water Storage Tank and Pipeline project. The project would involve construction and operation of an 8-million-gallon potable water storage tank in the City of Perris. JD led the paleontology survey.

Fatima Clark

Deputy Archaeological/Paleontological Resources Technical Lead



EDUCATION

BA, Anthropology,
California State
University, Fullerton

18 YEARS' EXPERIENCE

CERTIFICATIONS/ PERMITS

Field Director, Statewide,
California BLM Cultural
Resources Use Permit CA-
21-27

HAZWOPER Certified

PROFESSIONAL AFFILIATIONS

Society for California
Archaeology

Fatima Clark has 17 years of hands-on archaeological experience and is practiced in project management and client and agency coordination. Her field experience is complimented by the course study and participation in numerous archaeological excavations in California and Arizona. Fatima has written CEQA-level technical reports, EIR sections, Initial Study sections, archaeological peer reviews, archaeological monitoring reports, and reports pursuant to Caltrans requirements. Once a full-time in-house consultant to Southern California Edison (SCE), Fatima assisted in the management of the Deteriorated Poles Program, General Order (GO) 131-D Program, and the Valley South Subtransmission Project. She is also experienced in performing archaeological testing, site recordation, laboratory analysis, pedestrian surveys, records searches through several California Historical Resources Information Systems-Information Centers, and monitoring for a wide variety of projects, including mixed-use, residential, and energy, water, and road infrastructure projects. In addition to her archaeology background, Fatima has been cross-trained in conducting paleontological surveys and monitoring and has co-authored and managed associated reports.

Relevant Experience

Irvine Ranch Water District, IRWD Syphon Reservoir EIR Addendum No. 3, Irvine, CA. Archaeologist. ESA was retained by IRWD to conduct an Extended Phase I Cultural Resources Assessment (Extended Phase I) for the Project at CA-ORA-601 and to determine whether it qualifies as a historical resource or a unique archaeological in accordance with CEQA. Fatima conducted excavation of 15 shovel test pits (STPs) within a portion of CA-ORA-601 and the preparation of the Extended Phase I report. The STP excavations yielded very limited cultural resources (one flake and two possible debitage fragments) and the assessment indicated that CA-ORA-601 is ineligible for listing in the California Register.

IRWD, Syphon Reservoir Geotechnical Investigations MND, Orange County, CA (2019-2020). Archaeological and Paleontological Monitor. The Final IS/MND concluded that the Project Site was sensitive for archaeological resources (due to the existence of several prehistoric archaeological sites within the Project Site) and paleontological resources [due to the geologic units within the Project Site having high paleontological potential (Silverado, Sespe/Vaqueros Formations)]. Fatima conducted the archaeological and paleontological monitoring for the project and was the main author of the monitoring report. The project proposed geotechnical explorations consisting of exploratory test pits, borings, abutment trenches, and a seismic trench at the Syphon Reservoir to characterize the subsurface conditions of the soil.

IRWD, Syphon Reservoir Improvement Project, Orange County, CA (2018-2019). Archaeologist. Fatima was in charge of conducting archival research, pedestrian survey, and served as one of the lead author of the Cultural Resources Assessment Report, pursuant to CEQA and Section 106. The survey for the study led to the relocation of two previously recorded prehistoric archaeological sites and the recordation of five additional

Fatima Clark (Continued)

Deputy Archaeological/Paleontological Resources Technical Lead

resources, including one prehistoric isolate, one historic-period archaeological resource, and three historic architectural resources.

Orange County Great Park (Heritage Fields) Project, Irvine, CA. *Paleontological Monitor.* Fatima performed paleontological monitoring for resources in contaminated soils on the former El Toro Marine Corps Air Station.

Orange County Sanitation District, Headworks Rehabilitation and Expansion Project (Project No. P1-105), Fountain Valley, CA. *Archaeologist.* Fatima was in charge of preparing the Cultural Resources section of the Initial Study/Mitigated Negative Declaration for the project. The Orange County Sanitation District (OCSD) proposes to implement the Headworks Rehabilitation and Expansion Project at OCSD's Plant 1 wastewater treatment facility located in Fountain Valley, California. The proposed Project includes rehabilitation, demolition, and new construction of headworks structures at Plant 1.

Santa Margarita Water District, San Juan Watershed Project, San Juan Capistrano and Dana Point, CA. *Archaeologist.* Fatima was the lead author for the Phase I Cultural Resources Studies for the project compliant with CEQA and Section 106 of the National Historic Preservation Act. Fatima also conducted the records searches, pedestrian survey, prepared the Cultural Resources section of the EIR, and conducted coordination with the Orange County Flood Control District in order to acquire an encroachment permit to conduct the pedestrian survey. The project is to be constructed in multiple phases. The first phase (Phase I) would include installation of three rubber dams and control buildings within San Juan Creek. Subsequent phases include additional dams within San Juan Creek and Arroyo Trabuco, recycled water recharge facilities, and additional upgrades to existing groundwater recovery facilities.

Orange County Sanitation District (OCSD) Project, Cities of Huntington Beach and Fountain Valley, CA. *Archaeologist.* Fatima was the lead preparer of the Cultural Resources section for the Program Environmental Impact Report (PEIR). To comply with CEQA, the OCSD developed a Biosolids Master Plan (BMP) PEIR. The BMP was designed to implement nine different projects that are necessary to upgrade Plant No. 2 biosolids handling facilities to align with OCSD's goals and objectives. OCSD facilities are located in northwestern Orange County.

California Department of Water Resources, Lake Perris Seepage Recovery, Riverside County, CA. *Archaeologist.* Fatima was in charge of the following tasks: archival research, survey, subsurface archaeological sensitivity assessment, analysis of direct and indirect effects to the National Register-Colorado River Aqueduct, and preparation of the Cultural Resources Assessment Report in compliance with CEQA. The proposed project would collect water that is currently seeping out of Lake Perris through an integrated recovery well system, and then provide the recovered water to the Metropolitan Water District of Southern California.

California Water Service Company, Palos Verdes Peninsula Water Reliability Project, Palos Verdes Peninsula. *Archaeological/Paleontological Monitor.* Fatima conducted the archaeological and paleontological monitoring, which led to the identification and salvage of numerous fossils from the Monterey Formation. The project proposed the construction of new potable water pipelines and a new booster pump station to replace the current water distribution system serving the Palos Verdes Peninsula and improve overall system reliability.

County of Los Angeles, Department of Public Works, Whittier Boulevard Underground Utility Project, Los Angeles County, CA. *Project Co-Manager.* Fatima prepared the cultural resources assessment in support of a Class 2 Categorical Exemption. The project consists of the removal of utility poles and overhead lines, and the excavation for underground utility lines along Whittier Boulevard right-of-way. One historical resource, the early-to-mid 20th century Los Angeles Railway (or Yellow Cars), was identified in the project area as a result of archival research and geotechnical investigations. Fatima also managed the archaeological monitoring of construction activities and prepared the monitoring report.

Adrienne Lee

Biological Resources Monitor



EDUCATION

MS, Biology, University of California, San Diego

BS, Ecology, Behavior, and Evolution, University of California, San Diego

9 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

National Habitat Conservation Plan Coalition

California Habitat Conservation Plan Coalition

Entomological Society of America

The Wildlife Society Western Section

California Native Plant Society

Association of Environmental Professionals

Adrienne is a managing environmental biologist and experienced project manager with expertise in land and resource management. Her experience includes developing and implementing resource management and monitoring plans for conserved lands throughout southern California. She specializes in preserve management, resource management planning, pollinator identification, composition of technical environmental documents, and project management. Additional experiences include general biological surveys, focused species surveys (i.e., Crotch’s bumble bee; Quino checkerspot butterfly; Harbison’s dun skipper; rare plant species, including San Diego thornmint, willow monardella, variegated dudleya, Otay tarplant, and Encinitas baccharis; least Bell’s vireo; burrowing owl; and Mojave ground squirrel), habitat restoration, and compliance monitoring. She has experience working within the San Diego County Multiple Species Conservation Program (MSCP); Multiple Habitat Conservation Program (MHCP) for the Cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista; City of Carlsbad Habitat Management Plan (HMP); City of Chula Vista MSCP Subarea Plan; and San Diego City and County guidelines.

Relevant Experience

Irvine Ranch Water District, Syphon Reservoir Improvement Project, Orange County, CA. *Biologist.* As a Crotch’s bumble bee specialist, Adrienne contributed to the Incidental Take Permit (ITP) application. CDFW issued an ITP for the project, and Adrienne was approved as a Designated Biologist for Crotch’s bumble bee monitoring.

Orange County Parks, Caspers Wilderness Park Entry Road Repairs, San Juan Capistrano, CA. *Biological Compliance Monitor.* Adrienne provided full-time biological resource monitoring and spot checks during ground disturbance activities to avoid biological resource impacts for the Caspers Wilderness Park Entry Road Repairs project.

Eastern Municipal Water District Mission Canyon II Pump Station and Pipeline Project, Riverside County, CA. *Lead Biologist and Biologist.* ESA provided biological, cultural, and paleontological mitigation surveys and monitoring for the Mission Canyon II Pump Station and Pipeline Project. Adrienne led focused Crotch’s bumble bee surveys within the proposed project area. Survey time totaled 2.3 hours with no Crotch’s bumble bee detections. Adrienne assisted with focused protocol Quino Checkerspot Butterfly surveys under the supervision of ESA biologists.

California High-Speed Train Project (CHSTP), Fresno, CA. *Designated Biologist.* ESA is providing environmental compliance support services for the Merced to Fresno Construction Package 1 (CP1), the 29-mile first segment of the California High Speed Rail design/build project, and the Fresno to Allensworth Construction Package 2–3 (CP2–3), the 60-mile segment of the California High Speed Rail design/build project. Adrienne is a CDFW-approved Designated Biologist for Crotch’s bumble bee for CHSTP. She provides input to the client on methods for implementation of pre-construction clearance surveys,

Adrienne Lee (Continued)

Biological Resources Monitor

compliance monitoring and conservation measures for this species, and conducts focused pre-construction Crotch's bumble bee surveys within the MSAA project boundaries.

Cedar Springs Dam Spillway Repair Project, California Department of Water Resources, Silverwood Lake, Unincorporated San Bernardino County, CA. *Biologist.* ESA prepared the nesting bird management plan, performed preconstruction wildlife surveys, conducted biological and archaeological monitoring, and prepared weekly monitoring reports during project construction. Adrienne conducted biological monitoring during project construction.

City of Carlsbad Preserve Steward, Carlsbad, CA. *Preserve Steward and Project Manager.* Adrienne currently serves as the Preserve Steward for the City of Carlsbad. She is responsible for overseeing and coordinating management and monitoring activities associated with implementation of the HMP and Open Space Management Plan (OSMP) as part of the MHCP. She oversees the management of over 100 preserves (~6,195 acres) within the city to ensure endowments are properly funded and preserve managers are providing appropriate management and monitoring per the HMP, preserve-specific Preserve Management Plans, and Property Analysis Records. Other responsibilities include coordination with the HMP Program Manager and preserve managers to support HMP implementation; HMP compliance review; public outreach regarding the value of our natural lands, public rules within the preserves, and information on invasive non-native species; and development of a site inspection program for underfunded/unmanaged preserve lands to determine threats and adaptive management potential, needs, and urgency. As part of the site inspection program, Adrienne coordinates and manages restoration contractors implementing maintenance and management based on inspection results and recommendations. Additionally, ESA has also provided a citywide assessment of wildlife movement within the HMP preserve and monitors high-priority pinch points via roadkill studies, wildlife movement cameras, and dog waste studies, to offer adaptive management techniques for improving wildlife movement within the city. Adrienne has also performed post-fire monitoring in chaparral, oak woodland, and coastal sage scrub habitats and provides input regarding the treatment of numerous invasive non-native plant and animal species, including Ward's weed, a newly invasive non-native plant species to North America.

Implementation of Targeted Monitoring Plan, 2019–2024 Resource-Specific Monitoring and Management, San Diego, CA. *Project Manager & Lead Biologist.* Adrienne has been the project manager and lead biologist for the Implementation of the Targeted Monitoring Plan since 2022. The Targeted Monitoring Plan provides monitoring and management recommendations for 22 rare and endangered species and 2 habitats across 20 open space parks and preserves owned by the County of San Diego DPR, and implementation varies on an annual basis. From 2022–2024, Adrienne has coordinated field monitoring efforts for 16 species and 2 habitats across 16 open space parks and preserves and oversaw and led the preparation of the annual monitoring reports. As lead biologist, she has conducted monitoring and management for San Diego thornmint at Simon County Preserve and Sycamore Canyon/Goodan Ranch County Preserve, Otay tarplant at Furby-North Property, variegated dudleya at Lusardi Creek County Preserve and Sycamore Canyon/Goodan Ranch County Preserve, willowy monardella at Sycamore Canyon/Goodan Ranch County Preserve, and peak forage monitoring and residual dry matter monitoring at Ramona Grasslands County Preserve. She assisted monitoring for Encinitas baccharis, Harbison's dun skipper, tricolored blackbird, burrowing owl, northern harrier, and vernal pools/alkali playas. Surveys were conducted according to the Targeted Monitoring Plan for species and habitats covered under the South County MCSP Subarea Plan and draft North County MSCP.

Brennan Mulrooney

Biological Resources Monitor



EDUCATION

BS, Wildlife and Fisheries Biology, University of California at Davis, 1997

22 YEARS' EXPERIENCE

CERTIFICATIONS/REGISTRATION

USFWS 10(a)1(A)
Endangered Species Permit for Quino Checkerspot Butterfly, Light-footed Ridgway's Rail, Southwestern Willow Flycatcher, Yellow-billed Cuckoo (western DPS) and Coastal California Gnatcatcher (TE-06873C-1)

CDFW Scientific Collecting Permit

California Department of Fish and Wildlife Authorization for Flat-tailed Horned Lizard

Red Cross First Aid and CPR Certification

Brennan Mulrooney has more than 22 years of experience as a wildlife biologist with emphasis on field ornithology. He has extensive and varied experience with wildlife surveys, population monitoring, and habitat assessment. His primary focus has been with search efforts and monitoring of threatened and endangered avian species. In addition, a passion for understanding seasonal status and distribution of avian species throughout North America has aided in his qualifications. He has field experience with over 500 species of birds in California and over 1000 in North America. While Brennan's field experience has been focused primarily on birds, he has spent most of his life exploring the outdoors in Southern California gaining a wide variety of experience with finding and identifying local butterflies, mammals, reptiles, amphibians, fish and plants. He is experienced with GPS and electronic data gathering and processing. He has experience writing technical reports such as USFWS 45 Day Reports, monitoring summaries, nesting bird survey reports and assisting on Biological Technical Reports. He has extensive experience with operating boats of various types and sizes from kayaks to vessels over 100' in length.

Relevant Experience

Irvine Ranch Water District, Syphon Reservoir Improvement Project, Irvine, CA *Biologist.* Brennan was also approved as a Designated Biologist for biological monitoring by CDFW and conducted pre-construction nesting bird surveys and monitoring during preliminary vegetation clearing for the reservoir improvement project.

California Department of Water Resources, Emergency Release Facility and Lake Perris Outlet Tower Compliance Monitoring, Riverside County, CA. *Biologist.* ESA assisted the Department of Water Resources (DWR) with environmental documents required to analyze the environmental impacts of numerous State Water Projects and flood repair projects. Brennan performed protocol surveys for coastal California gnatcatcher.

ManTech JV, Ammunition Pier and Turning Basin for Naval Weapons Station Seal Beach, Orange County, CA. *Biologist.* Conducted nest surveys for all species with an emphasis on western snowy plover and California least tern. Also conducted nest monitoring for western snowy plover and California least tern.

NAVFAC, Solar Photovoltaic Systems at Naval Weapons Station Seal Beach, Orange County, CA. *Biologist.* Conducted protocol burrowing owl surveys for proposed solar photovoltaic systems.

California Department of Transportation (Caltrans), SR-52 Widening Project, San Diego, CA. *Biologist.* Conducted surveys for coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*) and assisted with surveys for Quino checkerspot butterfly and identified host plants as well as nectar sources.

Brennan Mulrooney (Continued)

Biological Resources Monitor

Caltrans, San Diego Association of Governments (SANDAG), and San Elijo Lagoon Conservancy, San Elijo Lagoon Restoration Project, Encinitas, CA. *Biologist.* Conducted surveys for western snowy plover (*Charadrius nivosus nivosus*), California least tern (*Sternula antillarum browni*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), coastal California gnatcatcher, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo, and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Additionally, performing general avian surveys and construction monitoring with emphasis on protection of light-footed Ridgway's rail.

Otay Mesa Conveyance and Disinfection System Project, Otay Water District, San Diego County, CA. *Biologist.* Conducted protocol western burrowing owl surveys for a proposed water pipeline to carry water from Mexico to Otay Mesa.

Ramona Grasslands Preserve Golden Eagle/Raptor Monitoring, San Diego County, CA. *Raptor Surveyor.* Brennan conducted standardized surveys for all raptor species. The surveys are intended to facilitate conservation and understand the foraging and nesting use on the preserve by special-status raptors and eagles. Special-status raptors regularly observed included golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus hudsonius*), ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*) and American peregrine falcon (*Falco peregrinus anatum*).

Implementation of Targeted Monitoring Plan, 2019–2024 Resource-Specific Monitoring and Management, San Diego, CA. *Biologist.* The Targeted Monitoring Plan provides monitoring and management recommendations for 22 rare and endangered species and 2 habitats across 20 open space parks and preserves owned by the County of San Diego DPR, and implementation varies on an annual basis. Brennan conducted monitoring and management for least Bell's vireo (*Vireo bellii pusillus*) at Santa Margarita County Preserve and Tijuana River Valley Regional Park, Harbison's dun skipper (*Euphyes vestris harbisoni*) at Hellhole Canyon County Preserve western burrowing owl at Ramona Grasslands County Preserve, Northern Harrier at Tijuana River Valley Regional Park, arroyo toad (*Anaxyrus californicus*) at Ramona Grasslands County Preserve.

Barnett Ranch County Preserve 2020–2021 Raptor Surveys, San Diego, CA. *Biologist.* Brennan conducted standardized surveys for all raptor species. The surveys are intended to facilitate conservation and understand the foraging and nesting use on the preserve by special-status raptors and eagles. Special-status raptors regularly observed included golden eagle, Cooper's hawk, white-tailed kite, northern harrier, prairie falcon and American peregrine falcon.

County of San Diego Department of Parks and Recreation, As-Needed Environmental Services (Agreement 557744), San Diego County, CA. *Biologist.* Conducted surveys for least Bell's vireo for three seasons and nest monitoring for one season at the Santa Margarita County Preserve. Conducted one season of least Bell's vireo surveys at the Tijuana River Valley Regional Park.

SDUSD Standley/Speckles Project, San Diego, CA. *Biologist.* Conducted weekly biological monitoring for noise and preconstruction surveys per the project's IS/MND/MMRP. The preconstruction nesting bird survey located a potential nest within an owl box. The barn owl nest box was then actively monitoring when mechanized equipment was working within the 120-ft buffer. Conducted weekly targeted surveys for coastal California gnatcatcher (*Polioptila californica californica*), nesting birds and took noise measurements. Brennan directly coordinated with the crews to ensure the crew remained in compliance and ensured the barn owl box was not disturbed by construction-related activities.

Douglas Gordon-Blackwood

Biological Resources Monitor



EDUCATION

BS, Botany, California State Polytechnic University, Pomona

17 YEARS' EXPERIENCE

PROFESSIONAL AFFILIATIONS

Committee Chair - American Society of Consulting Arborists (ASCA)

International Society of Arboriculture – Western Chapter

Utility Arborist Association

REGISTRATIONS/ CERTIFICATIONS

American Society of Consulting Arborists Registered Consulting Arborist #689

International Society of Arboriculture, Certified Arborist/Utility Specialist - WE-11726-AU

TRAININGS/PERMITS

Wetland Training Institute 40-hour Wetland Delineator Certification Program 2018

University of California Cooperative Extension 2018 Gold-spotted Oak Borer / Invasive Shot Hole Borer Workshop

CDFW Rare Plant Voucher Collecting Permit 2081(a)-23-083-V

California Wetland Monitoring Workgroup 5-day General CRAM Training

Douglas Gordon-Blackwood is a consulting biologist and registered consulting arborist with over 15 years of experience in biological resources consulting and habitat restoration, and more than 17 years in arboriculture. Douglas has led and supervised biological surveys, vegetation mapping, and environmental compliance for major utility, transportation, and infrastructure projects across California and Nevada. Douglas brings deep expertise in botany, arboriculture, habitat restoration, and utility transmission projects, with extensive experience supporting large utilities, energy developers, and public agencies requiring senior-level biological and arboricultural expertise in California. This includes work with organizations such as Southern California Edison, Los Angeles Department of Water and Power, Ormat, NextEra Energy Resources, EDF Renewable Energy, and Southern California Gas.

Relevant Experience

Irvine Ranch Water District Syphon Reservoir Improvement Project, Irvine, CA

Biologist. Douglas conducted habitat assessments, western spadefoot toad surveys and rare plant surveys on the Syphon Reservoir property and identified *Dudleya multicaulis*, *Viguiera laciniata*, and *Calochortus catalinae* specimens. He lead preparation of the incidental take permit application package for Crotch's bumble bee and developed long term management plans for the project's riparian and upland habitat mitigation on-site and off-site. He also conducted plant community mapping, developed a complete floral inventory, and prepared the draft biological resources technical report for the property north of Irvine Lake that was acquired to provide upland habitat mitigation for the reservoir project.

Orange County Public Works San Diego Creek Sediment Removal Project, Irvine, CA

Biologist. Douglas conducted daily site spot checks and nesting bird surveys during construction activities involving sediment removal from San Diego Creek segments.

Trails at Santiago Creek Development, Orange, CA. *Biologist/Botanist.* Douglas conducted rare plant, vegetation mapping, Jurisdictional delineations, and burrowing owl surveys of a 11-acre parcel of Rio Santiago, a large development in the City of Orange.

Orange County Public Works Caspers Wilderness Park Entry Road Repair Project, San Juan Capistrano, CA.

Biologist. Douglas provided biological monitoring and reporting for the extensive repair and rebuild of an Arizona crossing where the park's main entry road passed over San Juan Creek where special status species were known to occur.

Orange County Public Works Peters Canyon Bikeway Extension Project,

Orange/Tustin, CA. *Biologist.* Douglas conducted a biological assessment and lead preparation of the Natural Environment Study that describe resources and project effects for paseo and bikeway widening project along a segment of Jamboree Road in Irvine, that would encroach into the Regional Park and affect a strip inside the Orange County NCCP/HCP Reserve.



Douglas Gordon-Blackwood (Continued)

Biological Resources Monitor

Los Angeles Department of Public Works Los Angeles River Bike Path, Universal City, CA. *Arborist.* Douglas conducted a tree inventory and reporting for the LA River bike path between Willowcrest Avenue and Barham Boulevard, and within the Universal Studios Specific Plan Area.

Orange County Public Works Villa Park Biological Monitoring, Orange, CA. *Biologist.* Douglas provided biological and restoration monitoring and reporting for a brush clearance project at the Villa Park Dam facility and within fuel modification areas adjacent to the dam.

Palos Verdes Peninsula Water Reliability Project Environmental Compliance Monitoring, Palos Verdes, CA. *Compliance Monitor.* Douglas conducted daily compliance monitoring of a pipeline replacement project within Palos Verdes and Rolling Hills Estates.

Orange County Public Works Countywide Long Term Routine Maintenance Program Channel Categorizations 2019 & 2020, Orange County, CA. *Biologist.* Douglas conducted channel categorizations, biological surveys, jurisdictional delineations, vegetation mapping and reporting for various channels and basins in Orange County, CA.

Los Angeles Department of Water and Power Silver Lake Reservoir Complex Master Plan Project. *Arborist.* Douglas conducted tree inventories and provided reporting for trees within City of Los Angeles Recreation and Park lands surrounding Silver Lake Reservoir.

South Coast Water District (SCWD) Lift Station II Project. *Biologist.* Douglas conducted an aquatic resource survey, vegetation mapping, and prepared a revegetation plan for repairs to the Lift Station II project.

Magnolia Tank Farm Project, Huntington Beach, CA. *Jurisdictional Delineator.* Douglas conducted a preliminary aquatic resources delineation of a proposed development project within the City of Huntington Beach, CA. Observed sensitive species included southern tarplant (*Centromadia parryi* ssp. *australis*).

Culver Crossings Project, Culver City, CA. *Arborist.* Douglas conducted a tree inventory and provided reporting for the Culver Crossings project located in Culver City, CA.

United States Army Corps of Engineers Santa Ana River Mainstem Project, Corona/Norco, CA. *Biologist.* Douglas conducted nesting bird and burrowing owl preconstruction surveys for the project, and conducted plant identification trainings for United States Army Corps of Engineers staff on the Project located within the Santa Ana River.

California Department of Fish and Wildlife (CDFW) Western Joshua Tree Conservation Fund: Conservation and Mitigation Opportunity Specialist. Kern, Tulare, Inyo, San Bernardino, and Los Angeles Counties, California. *Western Joshua Tree Land Acquisition Consultant.* Douglas serves as the western Joshua tree land acquisition consultant for CDFW for the Western Joshua Tree Conservation Fund.

Eastern Municipal Water District (EMWD) San Jacinto Valley Raw Water Facilities Initial Study/MND, Hemet, CA. *Burrowing Owl Biologist.* Douglas conducted protocol burrowing owl surveys of multiple proposed well, pipeline, and construction staging areas throughout the city of Hemet.

Department of Water Resources San Joaquin Field Division Subsidence Surveys, Kern County, CA *Burrowing Owl.* Douglas conducted burrowing owl habitat assessments, burrow inventory, and protocol surveys along the California Aqueduct within Kern County.

Department of Water Resources Cedar Springs Spillway Repair Project, Hesperia, CA. *Biological Monitor.* Douglas provide biological monitoring and nesting bird surveys for the Cedar Springs spillway repair project located within the Silverwood Lake SRA.

Dillon J. Travis, Ph.D.

Biological Resources Monitor



8 YEARS' EXPERIENCE

EDUCATION

PhD, Ecology, Behavior, and Evolution, University of California, San Diego

BA, Ecology and Conservation, Boston University

BA, Tropical Ecology, Universidad de San Francisco de Quito, Ecuador

TRAINING/CERTIFICATES

USACE Arid West Wetland Delineation Training, Wetland Training Institute

Quino Checkerspot Recovery Permit Practical Examination (USFWS)

San Diego Vegetation Classification Manual, Manual of California Vegetation, Holland-Oberbauer Vegetation Communities Competent

Dillon Travis has over eight years of experience conducting extensive field work in coastal sage scrub and chaparral ecosystems throughout Southern California, as well as identifying native plants and pollinators such as bumble bees, solitary bees, flies, beetles, and butterflies. During his graduate studies, Dillon was highly effective in managing research teams to produce high quality work, as well as mentoring students to become the next generation of scientists. As an environmental consultant, Dillon has experience identifying and leading the monitoring for several special-status species, including Crotch's bumble bee, heart-leaved pitcher sage, thread-leaved brodiaea, Orcutt's brodiaea, willowy monardella, variegated dudleya, San Diego thornmint, Encinitas baccharis, Orcutt's bird's-beak, Quino checkerspot, Harbison's dun skipper, arroyo toad, least Bell's vireo, Stephen's kangaroo rat, pallid bat, and Townsend's big-eared bat.

Relevant Experience

Irvine Ranch Water District, Syphon Reservoir Improvement Project, Irvine, CA

Biologist. Dillon assisted with preparing the application package for the Incidental Take Permit (ITP) for Crotch's bumble bee (CBB) for the project. He was also approved as a Designated Biologist by CDFW to monitor potential effects on CBB. He conducted daily monitoring during preliminary vegetation clearing for the reservoir improvement project. He observed work crew activities, prepared daily activity logs, and contributed to the report on the clearing activities. He also contributed considerably to the development of the Weed Management Plan for the project, which included preparing the Pesticide Use Plan and the Early Detection Rapid Response Plan components.

City of Carlsbad, Habitat Management Plant (HMP) Site Inspection Program, Carlsbad, CA.

Biologist. To evaluate the status of unmanaged preserves and determine management priorities, Dillon identified 37 unmanaged preserves that were a priority for management and conducted site visits to locate sensitive biological resources, threats, and opportunities for habitat restoration and enhancement.

County of San Diego, Targeted Monitoring Plan (TMP) Implementation – Habitat Condition Assessment, San Diego, CA.

Deputy Project Manager, Biologist. As a participant in the Multiple Species Conservation Program (MSCP) the County of San Diego is obligated to conduct biological monitoring of habitats and species covered by the MSCP to ensure that the MSCP biological conservation goals and conditions for species coverage are being met. Dillon led vegetation mapping, rare plant, and invasive non-native plant mapping within five San Diego County Preserves and Parks and prepared the report for the client.

Metropolitan Water District of Southern California, Foothill Pump Station Intertie Project, San Bernardino, CA.

Biologist. Dillon conducted three Crotch's bumble bee surveys throughout the project footprint and surrounding area, documenting suitable habitat, potential floral resources, potential nesting sites, and all pollinator species.

Eastern Municipal Water District, Mission Canyon II Pump Station and Pipeline Project, Perris, CA.

Biologist. The proposed project is planning to construct a new pump station and associated pipelines to address hydraulic capacity issues of the existing Mission Canyon II Pump Station which will subsequently be demolished. Dillon conducted



Dillon J. Travis, Ph.D. (Continued)

Biological Resources Monitor

three Crotch's bumble bee surveys throughout the project footprint and surrounding area, documenting suitable habitat, potential floral resources, potential nesting sites, and all pollinator species.

Otay Water District, 870-2 Reservoir Project, Otay Mesa, CA. *Biologist.* ESA is conducting mitigation measure compliance and construction monitoring for the Otay Water District for the construction of an additional reservoir. Dillon conducts weekly construction compliance spot checks and monitoring, nesting raptor and bird surveys (including least Bell's vireo and coastal California gnatcatcher), and noise monitoring to ensure the project is within compliance with the Mitigation Monitoring and Reporting Program.

California High Speed Rail Project, Environmental Compliance for Fresno to Bakersfield Construction Package 2-3, Fresno to Bakersfield, CA. *Biologist.* As a subconsultant to the California High Speed Rail Authority (CHSRA), ESA is providing environmental compliance support services for the Fresno to Bakersfield Construction Package 2-3 (CP1). Dillon conducts the biannual Crotch's bumblebee surveys at all MSAA (Master Streambed Alterations Agreement) features throughout the 70-mile alignment and assists in drafting and submitting the reports to the client and CDFW.

Santa Margarita Water District, Oso Creek Water Reclamation Plant Improvement Project, Mission Viejo, CA. *Wetland Delineator.* The proposed project would construct a new water reclamation and advanced water treatment facility. Dillon conducted a wetland delineation of aquatic resources within Oso Creek and drafted the report of the findings for the client.

Lennar Aidlin Hills Project, Stephenson Ranch, CA. *Deputy Project Manager, Biologist.* The proposed project would construct over 100 new homes within Stephenson Ranch. Dillon assists with scheduling biological monitors and permit compliance. Dillon conducted Crotch's bumble bee surveys and served as a biological monitor for construction activities.

California High Speed Rail Project, Environmental Compliance for Merced to Fresno Construction Package 1, Merced to Fresno, CA. *Biologist, Support Staff.* As a subconsultant to the California High Speed Rail Authority (CHSRA), ESA is providing environmental compliance support services for the Merced to Fresno Construction Package 1, the 29-mile first segment of the California High Speed Rail design/build project. ESA provides real time documentation of surveys and habitat disturbance via field tablets and tailored online GIS applications. Dillon conducts the biannual Crotch's bumblebee surveys at all MSAA (Master Streambed Alterations Agreement) features throughout the 21-mile alignment and assists in drafting and submitting the reports to the client and CDFW. Dillon also assists the deputy project manager as one of the primary contacts to the client's environmental point of contact regarding construction schedule and assists with field staffing regarding biological monitoring and preconstruction surveys.

Eastern Municipal Water District. Perris II Desalter Expansion Project, Menifee, CA. *Biologist.* The proposed project would convey raw brackish water from proposed extraction wells located in the City of Menifee to the existing Perris II Desalter for desalination. Dillon conducted three Crotch's bumble bee surveys throughout the project footprint, documenting suitable habitat, potential floral resources, potential nesting sites, and all pollinator species.

Imperial Irrigation District – Vegetation Mapping, south Salton Sea, Brawley, CA. *Biologist.* Dillon's responsibilities included vegetation mapping, rare plant and invasive plant surveys along the south end of the Salton Sea shoreline.

Arica Solar, LLC and Victory Pass I, LLC, Arica and Victory Pass Solar Projects Construction Monitoring, Blythe, CA. *Environmental Construction Compliance Monitor.* ESA is implementing the Environmental Construction Compliance Monitoring Program (ECCMP) on behalf of the BLM. Dillon is helping to facilitate the timely resolution of compliance-related issues in the field, provide continuous information to the BLM and other agencies and parties as authorized regarding noncompliance issues and their resolution, and lastly to review, process, and track construction-related changes to project plans.

Michelle Gonzalez

Biological Resources Monitor



EDUCATION

BS, Marine Biology,
California State
University, Long Beach

8 YEARS' EXPERIENCE

CERTIFICATIONS/

WORKSHOPS

CPR Certified, Red Cross,
2019

Southern Sierra Research:
WIFL Workshop Kern
Preserve Headquarters,
Weldon CA (2022). 5 hours
within occupied habitat

Basic Wetland Delineation
Course, Wetland Training
Institute (2022)

Introduction to Mojave
Desert Tortoise, Desert
Tortoise Council (2023)

Riparian Bird Workshop,
Ventura County (2025)

PROFESSIONAL AFFILIATIONS

The Western Section of
Wildlife Society

The Wildlife Society So.
California Chapter

With eight years of fieldwork experience, Michelle Gonzalez has conducted nesting bird surveys and biological monitoring for sensitive resources on projects throughout Southern California. She also has experience monitoring California Least Tern, and she conducted independent research evaluating how physical parameters like light and temperature affect nesting success and habitat choice of California Least Terns at one field site (Pier 400 in the Port of Los Angeles). She has two years of lab experience and was a lab assistant in the Wetlands lab at California State University of Long Beach. She has considerable biological monitoring experience and is proficient with programs including Survey123, Collector, Solocator, and RStudio.

Relevant Experience

Irvine Ranch Water District (IRWD), Syphon Reservoir Improvement Project, Irvine, Unincorporated County of Orange, CA. *Biologist.* Michelle partnered with another ESA biologist to conduct a comprehensive mapping and vegetation cover assessment on more than 150 acres of upland habitat in areas to be preserved on the Syphon Reservoir Project in 2024. Michelle was also approved by CDFW as a biological monitor for the project in accordance with the draft LSAA. During preliminary vegetation clearing activities, Michelle assisted with coordination and conducted on-site monitoring that included capture and relocation of wildlife from areas being cleared.

Orange County Public Works, Santa Ana River Mainstem – Phase 5B Habitat Maintenance and Monitoring, Yorba Linda, CA. *Deputy Project Manager.* ESA is leading maintenance and monitoring of 48 acres of riparian and upland vegetation within Phase 5B along Reach 9 of the Santa Ana River in Yorba Linda. Our team coordinates with OCPW, oversees monitoring and documentation, and directs Habitat West in implementing maintenance activities. ESA restoration specialists also identify priority tasks, adjust efforts as needed, and ensure protection of special-status species and nesting birds during all work. Michelle served as Deputy Project Manager, supporting scheduling and direct communication and coordination with the client and subcontractors, and assisted in scheduling. She conducted surveys for least Bell's vireos and nesting birds in compliance with regulatory requirements and monitored ongoing maintenance activities.

U.S. Army Corps of Engineers (USACE)/Tetra Tech, Santa Ana River Mainstem Project, Norco to Yorba Linda, Riverside County and Orange County, CA. *Biologist.* Michelle has performed surveys and monitoring for nesting birds, noise monitoring, and least Bell's vireo surveys for several project sites in accordance with established mitigation measures and relevant protocols. She has also conducted BMP inspections and monitors and reports on the ongoing restoration efforts. Data and representative georeferenced photographs taken on site are recorded via Fulcrum and ArcGIS Field Maps.

California Department of Water Resources, Perris Dam Emergency Release Facility, Perris, Riverside County, CA. *Biologist and Compliance Monitor.* Michelle conducts pre-



Michelle Gonzalez (Continued)

Biological Resources Monitor

construction surveys for least Bell's vireo, California gnatcatcher and nesting birds during the breeding season and serves as a construction monitor and conducts Worker Environmental Awareness Trainings, as needed. Monitoring is conducted in accordance with the CDFW Streambed Alteration Agreement (1600-2019-0221-R6).

Orange County Sanitation District P2-128A South Perimeter Wall and Soil Improvements at Plant No. 2 , Huntington Beach, Orange County, CA. *Biologist.* Conducted a preconstruction biological survey in compliance with environmental mitigation measures (BIO-1) outlined in the Biosolids Master Plan EIR Addendum for Project No. P2-128. A Workers Environmental Awareness Training was given to all construction personnel to help identify nesting birds. The preconstruction survey was conducted prior to vegetation disturbance or activity within 500 feet of Talbert Marsh.

Orange County Public Works, Talbert Marsh Living Shoreline, Orange County, CA. *Biologist.* ESA provided biological services for the 3-acre Talbert Marsh Living Shoreline Project in Huntington Beach, which replaced a failing rip-rap slope with a living shoreline of native marsh plants. ESA biologists conducted pre-construction wildlife and nesting bird surveys, biological monitoring during construction, and two years of post-construction vegetation surveys in collaboration with Merkel and Associates. The project was completed in compliance with USACE, CDFW, and Coastal Development Permit conditions, successfully enhancing native habitat while protecting sensitive eelgrass populations. Michelle served as the Deputy Project Manager and led the surveys for rare plants and nesting shorebirds. She monitored nesting raptors, and eelgrass during construction along the banks of Talbert Marsh and Brookhurst Marsh.

Milan Capital Management, 6145 East Santiago Canyon Road, Orange, CA. *Lead Biologist.* Michelle performed least Bell's vireo pre-construction surveys and identified other nesting birds. California gnatcatcher, least Bell's vireo, and yellow-breasted chat were all observed on-site and she monitored ahead of construction adjacent sensitive habitat.

Orange County Parks, Staking Modification Zone Boundaries, Laguna Beach, CA. *Biologist.* Michelle assisted in locating the boundary marker points for the required staking of three City of Laguna Beach (City) fuel modification zones. Wooden stakes were installed, delineating the fuel modification zones, using GPS and Field Maps to ensure accurate installation.

Oso Parkway Bridge Project, Orange County Public Works, Orange County, CA. *Biologist.* Michelle monitored for biological resources in support of the Oso Parkway Bridge Project located between the southern terminus of State Route 241 and the northern terminus of the approved alignment for Los Patrones Parkway. As required in the County of Orange's Biological Resources Construction Plan (BRCP) for the Project pre-construction surveys of the area were to be conducted for biologically sensitive habitat. ESA fencing was monitored for the protection of endangered and threatened species. Regulated species include Western Spadefoot, nesting birds and raptors, Southwestern Willow Flycatcher/Least Bell's Vireo, Coastal California Gnatcatcher/Coastal Cactus Wren, Rufous-crowned Sparrow, Grasshopper Sparrow, Yellow-breasted Chat and Yellow Warbler, in accordance with state and federal guidelines.

Eastern Municipal Water District, Mead Valley/Good Hope Project, Focused Protocol Preconstruction Burrowing Owl Surveys, Mead Valley, CA. *Biologist.* Michelle performed focused pre-activity clearance surveys for burrowing owl (*Athene cunicularia*) following CDFW survey protocol (CDFW 2012). She checked previously identified suitable burrows and looked for sign as well as identified any new suitable burrows that could be utilized by the species.

Eastern Municipal Water District (EMWD), Wine Country Sewer Project, Temecula, Unincorporated Riverside County, CA. *Biologist.* Michelle supported the installation of sewer transmission lines by conducting least Bell's vireo protocol surveys, burrowing owl protocol surveys and nesting bird surveys.

Brian Rawles

Biological Resources Monitor



EDUCATION

MS, Environmental Science, California State University, Los Angeles

BS, Environmental Studies, University of California, Santa Barbara

7 YEARS' EXPERIENCE

CERTIFICATIONS

Basic Wetland Delineation Training Certificate

Intro to the Mojave Desert Tortoise Certification

SPECIALIZED TRAININGS

Rattlesnake Handling and Relocation Training, 2025

Southwestern Pond Turtle ID and Capture, 2025

PROFESSIONAL AFFILIATIONS

Researcher, Wood Lab of Avian & Urban Ecology

Collaborator, Wright Lab of Plant Microclimate & Facilitation Ecology

Brian Rawles has over 7 years of experience as a biologist surveying various species in Southern California, including the arroyo toad (*Bufo californicus*), burrowing owl (*Athene cunicularia*), California gnatcatcher (*Polioptila californica californica*), California red-legged frog (*Rana draytonii*), desert tortoise (*Gopherus agassizii*), least Bell's vireo (*Vireo bellii pusillus*), and more. He specializes in performing biological field surveys for bird, small mammal, amphibian, reptile, and invertebrate presence and habitat. Brian also has experience providing construction monitoring around special-status plant and animal species to support safe and responsible development. In addition to his biological expertise, Brian is a skilled communicator who has experience providing environmental awareness training, coordinating with external partners, and managing onsite staff.

Relevant Experience

California Department of Water Resources, Emergency Release Facility and Lake Perris Outlet Tower Compliance Monitoring, Riverside County, CA. Senior Biologist.

Brian conducted protocol burrowing owl surveys during the burrowing owl breeding season, assessed habitat, and prepared a results report to support technical studies for an environmental impact report. Brian also supported agency coordination organized camera trap deployment for active burrow monitoring and burrow collapse, once vacant. Additionally, Brian lead compliance monitoring efforts related to various project permits and special-status species observed in the project vicinity, including bald eagle (*Haliaeetus leucocephalus*), least Bell's vireo, coastal California gnatcatcher, Stephen's kangaroo rat (*Dipodomys stephensi*), and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*).

Eastern Municipal Water District, Wine Country, Riverside County, CA. Senior Biologist.

Brian conducted protocol-level surveys for burrowing owl and surveyed for nesting birds ahead of construction activities in compliance with the project's Mitigation Monitoring and Reporting Program (MMRP).

Eastern Municipal Water District, Mead Valley and Good Hope, Riverside County, CA. Senior Biologist.

Brian conducted protocol-level surveys for burrowing owl and surveyed for nesting birds ahead of construction activities in compliance with the project's MMRP.

Milan Capital Management, 6145 East Santiago Canyon Road, Orange, CA. Senior Biologist.

Brian surveyed and identified nesting birds, California gnatcatcher, least Bell's vireo, and yellow-breasted chat (*Icteria virens*) ahead of construction and monitored construction adjacent sensitive habitat. Brian also monitored and reported the status of active least Bell's vireo nests to relevant agencies.

Orange County Public Works, Talbert Marsh Living Shoreline, Orange County, CA. Senior Biologist.

Brian surveyed for rare plants and monitored nesting raptors, nesting shorebirds, and eelgrass (*Zostera marina*) during construction along the banks of Talbert Marsh and Brookhurst Marsh.

Brian Rawles (Continued)

Biological Resources Monitor

Palmdale Water District, Palmdale Ditch Compliance Monitoring, Unincorporated Palmdale, CA. Senior Biologist.

Brian surveyed western Joshua tree (*Yucca brevifolia*) and monitored construction activities in western Joshua tree woodland to ensure no unmitigated impacts would occur. Brian also identified and relocated California legless lizard (*Anniella pulchra*) and southern Pacific rattlesnake (*Crotalus oreganus helleri*) to undisturbed habitat beyond the construction impact area.

Santa Clarita Valley Water Agency, GDE Monitoring Protocol for GSP, Santa Clarita, CA. Senior Biologist. Brian conducts annual groundwater dependent ecosystem monitoring along the Santa Clara River. Monitoring activities include surveying riparian vegetation condition, measuring water depth, measuring channel width at various monitoring locations, and mapping vegetation communities.

City of Los Angeles, Department of Public Works, LA River Phase IV Bike Path, Los Angeles County, CA. Senior Biologist. Brian conducted a biological assessment and assisted an aquatic resources delineation to support CEQA documentation ahead of proposed construction along a stretch of the Los Angeles River containing natural vegetation and flowing water. Brian also assessed and reported potential construction impacts on wildlife movement within the River corridor adjacent isolated habitat patches. Additionally, he prepared a biological technical letter report detailing biological resources in the area and describing vegetation communities that may be impacted by construction.

Municipal Water District (MWD), Foothill Feeder Project, Santa Clarita, Los Angeles County, CA. Biologist and Biological monitor. Brian conducted pre-construction surveys and monitored construction for impacts to sensitive and special-status species potentially occurring on site including unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), coastal California gnatcatcher, and coast horned lizard (*Phrynosoma blainvillii*). Brian also observed, handled and documented the relocation of a coast horned lizard individual during the course of monitoring construction.

Municipal Water District (MWD) | Colorado River Aqueduct Conduit Structural Protection Project | Chiriaco Summit to Desert Hot Springs, Riverside County, CA. Biologist. Brian monitored compliance for infrastructure improvements at 24 Work Areas along the Colorado River Aqueduct from Chiriaco Summit to Desert Hot Springs in Riverside County. Construction activities occur within Mojave desert tortoise, mountain lion and burrowing owl habitat. Brian facilitated communication between biologists, project managers, construction crews and contractors to support construction compliance. Compliance monitors also prepared daily reports documenting best management practices and worksite conditions. Brian assisted the designated project biologist in pre-construction surveys for special status desert plants and wildlife, including burrowing owl, Mojave Desert tortoise, and mountain lion.

City of Los Angeles, Department of Recreation and Parks, Brush Clearance Project, Los Angeles County, CA. Project Manager/Senior Biologist. Brian coordinated biological support and environmental reporting corresponding to brush clearance activities in six parks or recreation areas with unique environmental requirements in Los Angeles County. Brian also surveyed and monitored environmental resources throughout the project. Environmental resources within park areas include sensitive riparian habitat, nesting birds, and special-status species, such as least Bell's vireo and southern tarplant (*Centromadia parryi ssp. australis*).

City of Los Angeles, Department of Recreation and Parks, Senior Urban Ecologist, Los Angeles County, CA. Senior Urban Ecologist. Brian serves on the Department of Recreation and Parks (LA RAP) staff as a Senior Urban Ecologist, managing biological resources throughout LA RAP properties, including Griffith Park. Brian responsibilities include conducting nesting bird surveys and reviewing permit requests.

Anna Weber

Biological Resources Monitor



Anna Weber has over 5 years of experience performing biological surveys, vegetation mapping, aquatic resource delineations, and conducting biological and compliance monitoring for projects throughout Southern California. Her experience with special status species has included least Bell's vireo, burrowing owl, Mojave desert tortoise, blunt-nosed leopard lizard and more.

Relevant Experience

EDUCATION

BS, Zoology, University of California, Santa Barbara

5 YEARS' EXPERIENCE

CERTIFICATIONS/ TRAININGS

Riparian Bird Workshop, California Central Coast Chapter of The Wildlife Society, June 2025

Introduction to Mojave Desert Tortoise, Desert Tortoise Council, November 2023

Basic Wetland Delineation Course, Wetland Training Institute, January 2023

Irvine Ranch Water District (IRWD), Syphon Reservoir Improvement Project, Irvine, Unincorporated County of Orange, CA. *Biologist.* Anna partnered with another ESA biologist to conduct a comprehensive mapping and vegetation cover assessment on more than 150 acres of upland habitat in areas to be preserved on the Syphon Reservoir Project in 2024.

U.S. Army Corps of Engineers (USACE)/Tetra Tech, Santa Ana River Mainstem Project, Norco to Yorba Linda, Riverside County and Orange County, CA. *Biologist.* Anna performs pre-construction surveys for nesting birds, noise monitoring, and least Bell's vireo surveys at multiple locations to ensure compliance to federal, state and local regulations. She also completes weekly BMP inspections of the construction sites and assists with inspecting and reporting ongoing restoration efforts. Data and representative georeferenced photographs taken on site are recorded via Fulcrum and ArcGIS Field Maps.

California Department of Water Resources, Perris Dam Emergency Release Facility, Perris, Riverside County, CA. *Biologist and Compliance Monitor.* Anna conducts pre-construction surveys for least Bell's vireo, California gnatcatcher and nesting birds during the breeding season, serves as a construction monitor and conducts Worker Environmental Awareness Trainings, as needed. Monitoring is conducted in accordance with the CDFW Streambed Alteration Agreement (1600-2019-0221-R6).

Eastern Municipal Water District (EMWD), Mission Canyon II Pump Station and Pipeline Project, Gibbel Road, Unincorporated Riverside County, CA. *Lead Field Biologist.* Anna supports the construction and operation of a new pump station and portable water pipelines by conducting biological pre-construction surveys for nesting birds, construction monitoring, and provides Worker Environmental Awareness Trainings, as needed. She also assists with writing the monthly compliance memorandums.

Eastern Municipal Water District (EMWD), Purified Water Replenishment Project, San Jacinto, Riverside County, CA. *Biologist.* Anna supports biological pre-construction surveys by conducting least Bell's vireo protocol surveys and burrowing owl protocol surveys during the breeding season.

Eastern Municipal Water District (EMWD), Mead Valley and Good Hope Water Improvements Project, Mead Valley and Good Hope, Riverside County, CA. *Lead Field Biologist.* Anna supports the installation of sewer transmission lines by conducting

Anna Weber (Continued)

Biological Resources Monitor

burrowing owl protocol surveys, nesting bird surveys, construction monitoring and provides Worker Environmental Awareness Trainings, as needed. She also assists with writing the monthly compliance memorandums.

Eastern Municipal Water District (EMWD), Wine Country Sewer Project, Temecula, Unincorporated Riverside County, CA. *Lead Field Biologist.* Anna supports the installation of sewer transmission lines by conducting least Bell's vireo protocol surveys, burrowing owl protocol surveys, nesting bird surveys, sound monitoring for LBVI, construction monitoring and provides Worker Environmental Awareness Trainings, as needed. She also assists with writing the monthly compliance memorandums.

Department of Water Resources (DWR), California Aqueduct Subsidence Program, Pool 31 Liner Raise Project, Taft, Kern County, CA. *Deputy Project Manager/Biologist.* Anna assists with coordination and scheduling of field personnel and assisted with the biological resources technical report. She conducts special status species surveys, including burrowing owl and blunt-nosed leopard lizard surveys.

Metropolitan Water District of Southern California (MWD), Colorado River Aqueduct Structural Conduit Protection Project, Chiriaco Summit to Desert Hot Springs, Riverside County, CA. *Deputy Project Manager/Compliance Monitor.* Anna conducts compliance monitoring for infrastructure improvements at 24 Work Areas along the Colorado River Aqueduct from Chiriaco Summit to Desert Hot Springs in Riverside County. Construction activities occur within Mojave desert tortoise, mountain lion and burrowing owl habitat. She documents site conditions, active construction activities, and provides recommendations for best management practices in accordance with requirements outlined by the Streambed Alteration Agreement, Mitigation Monitoring and Reporting Program, Mitigated Negative Declaration and the Regional Water Quality Control Board. She completes monitoring reports daily via Fulcrum with representative photographs. She coordinates and schedules field personnel, communicates with the client, assists with quality control and assurance for field forms, and assists with reports.

DCR Transmission, Ten West Link Electrical Transmission Line, Blythe, Riverside County, CA to Tonopah, Maricopa County, AZ. *Heat Safety Supervisor.* Anna conducts heat safety supervising during the construction of transmission towers from Blythe in Riverside County, CA to Tonopah, Maricopa County, AZ. She visits the cultural resource monitors on site to monitor signs of heat stress and heat illness and distributes hydrating supplies to personnel. She completes reports daily via Survey123.

Pulte Group, Lake Ranch (Highland Grove), Riverside, Riverside County, CA. *Biologist.* Anna conducts nesting bird surveys, monitoring and spot checks during construction of the residential community. Special status species observed and monitored on-site include least Bell's vireo. Sound monitoring was conducted during the foraging/breeding season for least Bell's vireo. Anna also assists with the restoration monitoring phase of this project, by assisting with the As-Built report and documenting site conditions.

County of San Diego Parks and Recreation Department, Sweetwater Campground, Bonita, San Diego County, CA. *Biologist.* Anna served as a biological monitor for actively nesting killdeer and raven pairs during construction activities. She communicated with construction crews regarding the biological resources on-site and submitted monitoring reports with representative photographs.

Lennar, Harveston Mitigation, Temecula, Riverside County, CA. *Restoration Monitor.* Anna documents status and tracks non-native species for removal outside of the avian breeding season and tracks success of the riparian woodland and riparian transition habitat within the project site. Pre-construction avian surveys are conducted as needed.

Amanda French

Biological Resources Monitor



EDUCATION

B.S., Field Biology,
Ecology and Organismal
Biology, Southern Oregon
University

Certificate, Wetland
Science and Management,
University of Washington

10 YEARS' EXPERIENCE

REGISTRATIONS/ CERTIFICATIONS

California Rapid
Assessment Method
(CRAM) Trained
Practitioner, September
2022

Society of Wetland
Scientists Professional
Wetland Scientist #4076

TRAINING

Bat Acoustic Survey
Training, June 2023

Western Spadefoot
Training, March 2025

PROFESSIONAL AFFILIATIONS

Society of Wetland
Scientists

Amanda is a senior biologist and project manager who has worked in biological and regulatory monitoring, aquatic resources delineations, biological resources assessments, and protocol-level surveys throughout the western United States with particular expertise in Southern California. Amanda brings proficiency in conducting aquatic resources delineations and functional assessments, preconstruction surveys for sensitive species, including nesting birds, and habitats, and vegetation mapping in the Greater Los Angeles area and has supported a wide range of interdisciplinary projects. Amanda has experience working directly with construction contractors, providing biological Worker Environmental Awareness Program (WEAP) trainings and guidance in solving biological resources issues in real time. She is familiar with construction practices and the need to avoid delays in the construction setting. Additionally, Amanda has assisted with mitigation site selection, including preparation of habitat mitigation and monitoring plans, mitigation/restoration monitoring, and mitigation bank development.

Amanda is a skilled technical writer acting as the primary author on many technical documents including aquatic resources delineation reports, biological assessment reports, restoration annual monitoring reports, focused species survey reports, and MND/EIR sections in support of CEQA.

Relevant Experience

Eastern Municipal Water District (EMWD), Purified Water Replenishment (PWR) Conveyance Pipeline Alignment Relocation Project, San Jacinto, Riverside County, CA. *Biologist.*

ESA is providing biological consulting services along a recycled water easement north of the San Jacinto Reservoir. Along with a biological resources assessment and aquatic resources delineation, ESA is conducting several species-specific surveys for least Bell's vireo, burrowing owl, western spadefoot, bats, and rare plants. Amanda participated in the burrowing owl and least Bell's vireo surveys and led the aquatic resources delineation and biological resources assessment and associated reporting.

EMWD, Mitigation Monitoring and Reporting Program (MMRP) for the Mead Valley and Good Hope Water Improvement Project, Perris and Moreno Valley, CA. *Lead Biologist.*

ESA is assisting EMWD with biological resources MMRP implementation for this water infrastructure project. Amanda schedules and conducts preconstruction burrowing owl and nesting bird surveys.

Laguna Ocean Foundation, Aliso Creek Estuary Restoration Plan: Phase II, Laguna Beach, CA. *Lead Biologist/Wetland Scientist.*

ESA designers developed a locally-supported and CEQA/NEPA-ready Conceptual Restoration Plan for the Aliso Creek Estuary in Laguna Beach, California for the Laguna Ocean Foundation. The project is located at Orange County's Aliso Beach Park that currently provides parking, beach access, creek-side walking paths, playground, and picnic facilities to the community. The project goal was to



Amanda French (Continued)

Biological Resources Monitor

restore the lagoon at the mouth of Aliso Creek into a healthy estuary while maintaining recreation access. The ESA team provided technical expertise in coastal ecology and engineering, and landscape architecture. Amanda led the aquatic resources delineation and associated aquatic resources delineation report.

Coachella Valley Water District (CVWD), Palm Desert Groundwater Replenishment Facility Phase 2 Project, Unincorporated Riverside County, CA. *Biologist.* ESA assisted CVWD with developing a Permittee-responsible mitigation project on the northern edge of the Salton Sea. Amanda assisted with the aquatic resources delineation and California Rapid Assessment Method (CRAM) analysis in support of the Habitat Mitigation and Monitoring Plan (HMMP).

EMWD, Mitigation Monitoring and Reporting Program (MMRP) for the Wine Country North and South Sewer Projects, Temecula and Unincorporated Riverside County, CA. *Lead Biologist.* ESA is assisting EMWD with biological resources MMRP implementation for this sewer pipeline project. Amanda schedules and conducts preconstruction burrowing owl, least Bell's vireo, and nesting bird surveys.

Metropolitan Water District of Southern California, Inland Feeder - Foothill Pump Station, San Bernardino, CA. *Biologist.* ESA is supporting the Metropolitan Water District of Southern California (Metropolitan) with small mammal surveys to support an impact avoidance strategy for their intertie project based on guidance from U.S. Fish and Wildlife Service (USFWS) and San Bernardino Valley Municipal Water District's (SBVMWD) staff. The Metropolitan intertie project is proposing to connect the inland Feeder to the SBVMWD Foothill Pump Station along Cone Camp Road north of the Santa Ana River in San Bernardino County. The project requires work in areas that are adjacent to occupied San Bernardino kangaroo rat (SBKR; *Dipodomys merriami parvus*) habitat. ESA is providing ongoing biological services and support to Metropolitan with survey strategy and agency consultation and has conducted various studies including SBKR burrow surveys and nighttime activity surveys. Amanda conducted a biological resources survey of the project site and prepared the biological resources technical memorandum.

City of Los Angeles Department of Recreation and Parks, Ken Malloy Harbor Regional Park Emergent Vegetation Removal Project, Los Angeles, CA. *Project Manager/Biologist.* Amanda led the biological monitoring in compliance with the project's lake and streambed alteration agreement for wetland vegetation removal at the park. Special-status species known to occur onsite include southern tarplant and least Bell's vireo.

City of Huntington Beach, Pacific Airshow Environmental Impact Report and Monitoring, Huntington Beach, CA. *Lead Biologist.* ESA supported the client through the CEQA process for an annual special event: the Pacific Airshow. ESA conducted biological surveys and literature reviews and prepared a biological resources technical report to inform the results of the biological impact analysis and ultimately create an environmental impact report (EIR) necessary for the client to submit their event, compliant with CEQA measures. Amanda assisted in writing the biological resources section of the EIR and authored the Hazards section of the EIR related to wildlife hazards.

Pulte Group, Highland Grove 2 and 4 Residential Biological Services, Riverside County, CA. *Deputy Project Manager/Biologist.* ESA provides biological services for the Highland Grove 2 Residential Project and Highland Grove 4 Residential Project located near Lake Mathews in unincorporated Riverside County, California. Services include general biological survey and vegetation mapping, biological constraints analysis, focused surveys, biological resources technical report with Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis, and Determination of Biological Equivalent or Superior Preservation (DBESP) report. Amanda was Deputy Project Manager for the project and conducted the general biological survey and vegetation mapping and prepared the biological constraints analysis.

Brandon Jones

Biological Resources Monitor



EDUCATION

BS, Ecology and Evolutionary Biology, University of California, Irvine

4 YEARS' EXPERIENCE

Brandon Jones is a Biologist with four years of experience conducting nesting bird and vegetation surveys, as well as construction monitoring. He is proficient in identifying bird and tree species native to Southern California, and writing biological reports.

Relevant Experience

Perris Dam Emergency Release Facility Project (ERF), Perris, CA. *Biologist.* Brandon conducted California Gnatcatcher surveys, Least Bell's Vireo surveys, and construction monitoring for Sukut Construction. Brandon also evaluated fencing for small mammal trapping effort occurring on-site. Brandon produced reports daily regarding construction compliance, fencing status, and nesting birds.

Santa Ana River Mainstem Project, Orange/Riverside/San Bernardino Counties, CA. *Biologist.* Brandon performed environmental compliance monitoring during construction activities on multiple project sites. The monitoring included measuring noise within suitable habitat for least Bell's vireo during construction work in the vicinity. He also surveyed for nesting birds and monitored active bird nests. Brandon also performed BMP inspections and provided daily logs of observed activities and weekly BMP reports per SWPPP requirements.

Palmdale Ditch Project, Palmdale, CA. *Biologist.* Brandon conducted small mammal surveys and burrow evaluations for San Diego Desert Woodrat and Mohave Ground Squirrel, and construction monitoring for clearing and grubbing near protected Western Joshua Trees. Brandon reported on site conditions and status of burrows and WJT.

Eastern Municipal Water District, Mission Canyon II Pump Station and Pipeline Project, Hemet, CA. *Biologist.* Brandon conducted pre-construction surveys for nesting birds and southern tarplant. Brandon also conducted monitoring for southern tarplant exclusion fencing installation and clearing and grubbing, as well as grading at Mission Canyon. Brandon produced reports regarding construction compliance and southern tarplant status.

6145 E Santiago Canyon Rd, Orange, CA. *Biologist.* Brandon conducted multiple pre-construction surveys for Least Bell's Vireo, nesting birds, and southern tarplant preceding well installation. Brandon also installed flagging to denote buffers for southern tarplant and nesting birds. Brandon produced daily reports on any findings and updated Field Maps with polygons for buffers ahead of construction.

Eastern Municipal Water District, Perris Brackish Desalter Project, Perris, CA. *Biologist.* Brandon conducted burrowing owl surveys for the Eastern Municipal Water District. Brandon walked transects, and evaluated burrows for burrowing owl sign in the project area.

Eastern Municipal Water District, San Jacinto Valley Raw Water Conveyance Facilities Project, Hemet, CA. *Biologist.* Brandon conducted nesting bird surveys and construction

Brandon Jones (Continued)

Biological Resources Monitor

monitoring for a pipeline project in the San Jacinto Valley. Brandon documented and reported activity and potential disturbance of active bird nests weekly and ensured nearby construction activity was not impacting nesting birds.

Eastern Municipal Water District, Extraction Wells Project, San Jacinto, CA. *Biologist.* Brandon conducted nesting bird surveys and construction monitoring for an extraction well project in the San Jacinto Valley. Brandon documented and reported activity and potential disturbance of active bird nests weekly and ensured nearby construction activity was not impacting nesting birds.

California High Speed Train Project, Fresno, CA. *Biologist.* Brandon assisted in nesting bird sweeps for Swainson's hawk and burrowing owl, as well as nesting material removal. Brandon drafted reports of preconstruction surveys. Brandon took survey data from biologists and compiled them into the proper format in order to report findings to CDFW and USFWS for concurrence. Brandon consulted CDFW's and USFWS's different reporting requirements to present the desired information efficiently.

California High-Speed Train Project, Fresno, CA. *Field Liaison.* Brandon acted as the company's on-site representative during construction of a high-speed train railway in Central California. Brandon delivered supplies throughout the project alignment to both construction and biologist teams. Brandon also communicated needs to and from different teams to maintain efficiency and rapport.

Lennar Aidlin Hills Project, Los Angeles, CA. *Biologist.* Brandon conducted biological monitoring as construction crews cleared brush for future residential development. Brandon documented the activity and advised crews on best practices to avoid wildlife impacts.

City of LA Recreation and Park Project, Malibu, CA. *Biologist.* Brandon conducted a nesting bird survey for brush clearance crews performing park maintenance. Brandon conducted biological monitoring during brush clearance, and established no-work buffers around nesting birds to avoid impact.

Lake Ranch (Highland Grove) Project, El Sobrante, CA. *Biologist.* Brandon conducted nesting bird checks throughout a housing development construction project in El Sobrante. Brandon documented and reported activity of construction crews, as well as the status and activity of active nesting birds.

Southern California Edison, Utility Vegetation Management, Orange County, CA. *Arborist.* Brandon identified and assessed both native and non-native trees. Brandon prescribed trims and removals to trees based on trim schedules of tree crews, and clearance standards set by Southern California Edison. Brandon consulted with private property owners to discuss tree removal and remediation of vegetation hazards.

Colorado River Aqueduct Conduit Structural Protection Program, Indio, CA. *Compliance Monitor.* Brandon regularly monitored the construction of large concrete pads for maintenance of the Colorado River Aqueduct for environmental compliance. Brandon communicated daily with foremen and crews about BMP recommendations and current work. Brandon documented site conditions, active work, and BMP concerns by sweeping work areas regularly. Brandon produced daily reports summarizing conditions and communications that occurred on-site.

Ten West Link 500kV Transmission Line Project, Blythe, CA. *Heat Safety Supervisor.* Brandon supported ESA cultural staff monitoring construction of transmission lines in high-heat conditions by conducting daily check-ins. Brandon ensured that monitors were consuming adequate amounts of water and electrolytes, and taking regular breaks in the shade. Brandon evaluated each monitor's condition for signs of heat illness daily by observing their behavior and having conversations with them.

Robin Knight Hutchinson

Biological Resources Monitor



EDUCATION

BS, Plant Sciences,
University of
California Santa
Cruz, Santa Cruz,
California

7 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Wetland Delineation,
Wetlands Training
Institute, San Diego,
California, 2021

CPR/First Aid,
Offshore Safety
Training, Northeast
Maritime Institute,
Fairhaven,
Massachusetts, 2022

Robin Hutchinson has expertise in plant ecology (plant identification, rare plant surveys, vegetation transects, tree assessments, habitat mapping, ecological restoration and invasive species management). He has performed botanical fieldwork across a diverse range of California floristic regions, including northwestern, central western, Sierra Nevada, and the desert provinces, with a focus on the south coast and transverse ranges. Robin has developed robust skills in wetland delineation, writing technical reports, and vegetation mapping using ArcGIS. Robin has also performed nesting bird surveys throughout Santa Barbara, Ventura, and Los Angeles Counties.

Relevant Experience

City of Santa Barbara, Wildfire Resiliency, Santa Barbara, California. *Botanist.* Robin assisted in targeted rare plant surveys, invasive species identification, and construction monitoring for the City of Santa Barbara's wildfire resiliency program in City parks. This effort involved flagging plant species in the work areas, mapping locations using digital GPS applications, and interfacing with the public.

Private Client, Montecito, California. *Construction Monitor.* Robin assisted in construction monitoring for a development on private property in Montecito, CA. This work involved consistent monitoring of oak tree health throughout the construction site, as well as consultation with the client on potential impacts and solutions.

California Department of Water Resources, Perris Dam Emergency Release Facility, Perris California. *Construction Monitor.* Robin assisted in biological construction monitoring efforts for Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), western burrowing owl (*Athene cunicularia hypugaea*) and nesting bird species during vegetation clearing activities related to construction of the emergency release facility.

East Niles Community Services District, Shalane Tank, Bakersfield, California. *Biological Monitor.* Robin assisted in biological monitoring efforts related to installation of a water storage facility in the neighborhood of East Niles, ensuring protections for several special-status plant and wildlife species such as Kern mallow (*Malacothamnus kernii*), burrowing owl, San Joaquin kit fox and nesting birds, among others.

SoCal Gas, SoCal Gas Burton Mesa ROW Clearance, Lompoc, California. *Construction Monitor, Botanist.* Robin performed preconstruction surveys for target plant species seacliff buckwheat and California spineflower to help protect endangered butterfly species. Individuals occurring within the right-of-way to be cleared were mapped and flagged. Other resources such as aquatic habitats and avian species were also documented. He also assisted in monitoring during construction activities and flagged additional individuals of these resources as discovered during construction, as well as prepared the pre-activity report.

SoCal Gas, SoCal Gas Highway 46 8" Pipeline Install, Lost Hills, California. *Construction Monitor.* Robin assisted in monitoring for San Joaquin kangaroo rat during construction of a



Robin Knight Hutchinson (Continued)

Biological Resources Monitor

new 8" pipeline next to highway 46. Responsibilities included documentation of work activities, inspection of pipes and holes prior to work start and during construction.

Los Angeles Department of Water and Power, South Haiwee Fiber Optic Cable Install Project, Olancho, California. *Deputy Project Management.* Robin assisted with coordination tasks for a compliance monitoring project in the southern Owens Valley. This effort consisted of coordinating field surveys and construction monitoring, staff scheduling, communication with construction teams, weekly reporting and impacts analysis.

Brouillard Vineyards and Winery, LLC, Brouillard HFV Bridge Project Permitting, Buellton, California. *Deputy Project Management.* Robin assisted with coordination tasks for a bridge replacement permitting project in Santa Barbara County. This effort consisted of coordinating field surveys, staff scheduling, and client communication, in addition to preparing the permit application package for CDFW, USACE and the RWQCB.

Ventura WaterPure, Advanced water purification facility ESHA and Wetland Report, Ventura, California. *Biologist.* Robin performed a wetland delineation and environmentally sensitive habitat area (ESHA) assessment for the client on a property near the Santa Clara river in Ventura, California. This included an addendum for an added pipeline segment, vegetation mapping using aerial imagery and field verification, and analysis of special status species and their habitat.

Solastra Communities, Solomon Hills Development Project, Orcutt, California. *Botanist.* Robin led botanical efforts to create an updated biological report for a potential development in northern Santa Barbara County. This included aerial habitat mapping with GIS software, ground truthing surveys, and 100s of hours of floristic surveying a 900-acre property, in addition to assisting in preparing the Biological Technical Report, and rare plant identification.

Rancho La Laguna, Rancho La Laguna Development Project, North Santa Barbara County, California. *Botanist.* Robin assisted with botanical surveys, vegetation mapping, and rare plant identification for a potential subdivision north of Los Olivos, California.

Cravath, Swaine and Moore LLP, PG&E Fire Litigation Work. *Trees and Vegetation Expert.* Robin performed site visits to properties damaged by the Zogg, Kincade, Dixie and Mosquito Fires on behalf of Pacific Gas and Electric to determine impacts caused by the fires. This involved examinations of post fire recovery of homesite landscaping as well as wildland vegetation in a variety of habitat types, including Sierra Nevada mixed conifer, hard chapparal, valley grassland, oak woodland, Sierra Nevada mixed-conifer and ponderosa pine habitats. This work has been performed in Shasta, Lassen, Plumas, and Sonoma Counties in California. Mr. Hutchinson also prepared technical reports in response to damages claimed by landowners.

City of Ventura, Ventura PCAP, Ventura, California. *Botanist.* Robin led efforts to quantify habitat types in the Santa Clara River estuary. This involved aerial habitat mapping with GIS software, ground truthing surveys, edge habitat surveys via boat, and transect surveys through key habitat types such as riparian woodland, salt marsh and freshwater marsh throughout the estuary. He also drafted annual reports to the client.

Valley Water, Pacheco Reservoir Expansion Project, California. *Botanist.* Robin assisted in performing rare plant surveys and vegetation mapping for the project. This involved surveying buffer zones and areas of potential impact for rare plant species, as well as detailed sycamore tree assessments and mapping sensitive plant communities.

Southern California Edison (SCE), SCE Environmental Clearance Program On-Call, Fresno, Inyo, Kern, Los Angeles, Madera, Mono, Orange Counties. *Botanist.* Robin has performed rare plant surveys for SCE's ongoing maintenance programs for vegetation management, Transmission and Distribution, and Grid Resiliency projects throughout Santa Barbara, Ventura, and Los Angeles Counties. Species surveyed for include Gaviota tarplant, Santa Barbara honeysuckle, late-flowered mariposa lily, and several species endemic to Catalina island and the broader channel islands.

Kennedy Balderas

Archaeological / Paleontological Resources Monitor



EDUCATION

BS, Evolutionary Biology,
California State
University, Fullerton

BA, Earth Science,
California State
University, Fullerton

3 YEARS' EXPERIENCE

Kennedy Balderas is a recent graduate with a Bachelor of Science in Evolutionary Biology and a Bachelor of Arts in Earth Science. Some of her coursework included GIS, Earth Science and Data analysis, Geologic Field Techniques, Paleontology, Hydro and Surface Processes, Conservation Biology, Ecology, and Scientific Writing.

Relevant Experience

Los Angeles Department of Water and Power, North Haiwee Dam No. 2 Project, Inyo County, CA. *Paleontological Monitor.* ESA is providing cultural monitoring services for the Los Angeles Department of Water and Power. This project consists of construction including the realignment of Cactus Flats Road, realignment and demolition of the Los Angeles Aqueduct near the Dam, construction of the field laboratory, and construction of the new modern Dam, within a highly sensitive archaeological area. Kennedy is responsible for paleontological monitoring for the project.

Eastern Municipal Water District (EMWD), Mitigation Monitoring and Reporting Program (MMRP) for the Mead Valley and Good Hope Water Improvement Project, Perris and Moreno Valley, CA. *Archaeological and Paleontological Monitor.* ESA is assisting EMWD with biological and cultural resources MMRP implementation for this water infrastructure project. Kennedy conducted archaeological and paleontological monitoring for the project.

Orange County Sanitation District P2-128A South Perimeter Wall and Soil Improvements at Plant No. 2, Huntington Beach, Orange County, CA. *Paleontological Monitor.* ESA is providing biological and cultural resources construction monitoring for the P2-128 perimeter wall project. Kennedy provided a safety review presentation for the project.

Research Experience

John D. Cooper Archaeological and Paleontological Center, Orange County, CA. *Intern.* While interning for John D. Cooper Archaeological and Paleontological Center, Kennedy provided assistance with micro fossil removal from sediment matrix jackets and catalogued marine fossils in collections.

Parker Reece

Archaeological / Paleontological Resources Monitor



EDUCATION

BA, Anthropology,
Colorado College

2 YEARS' EXPERIENCE

Parker Reece is an archaeological technician with academic training and field experience in cultural resource management across the western United States. She earned a Bachelor of Arts in Anthropology from Colorado College, where her coursework emphasized field archaeology, bioarchaeology, and cultural heritage management. Through multiple field schools and research projects, Parker has conducted pedestrian surveys, archaeological excavations, and site documentation in Colorado, New Mexico, and Mongolia, including work on Indigenous and historical sites as well as looted burial contexts. She has experience preparing cultural resource survey reports in accordance with state guidelines, producing site maps using GIS platforms, and identifying and cataloging artifacts and skeletal remains. Parker brings strong technical skills, attention to detail, and a solid foundation in archaeological methods to support field investigations and cultural resource compliance efforts.

Relevant Experience

Orange County Water District, Santa Ana PFAS Facility (Wells 27 and 28), Santa Ana, CA. *Archaeological Monitor.* In accordance with the MMRP for the project, ESA conducted archaeological monitoring services during construction of a new PFAS treatment facility and associated utility improvements at existing well sites in Santiago Park in Santa Ana, CA. Several historic period archaeological resources were encountered that were treated in accordance with the MMRP for the project.

Los Angeles Department of Water and Power, North Haiwee Dam No. 2 Project, Inyo County, CA. *Archaeological Monitor.* The North Haiwee Dam Safety Project aims to improve the seismic reliability of the North Haiwee Reservoir by constructing a new earthfill embankment dam and realigning Cactus Flats Road and the Los Angeles Aqueduct Channel on both federal and LADWP land in Inyo County. ESA is working with the BLM and LADWP to implement CEQA and Section 106 mitigation commitments that include construction monitoring, Phase I surveys, extended Phase I and Phase II testing, and Phase III data recovery. Parker performed archaeological monitoring of construction and cultural resource collection and analysis.

Eastern Municipal Water District (EMWD), Mitigation Monitoring and Reporting Program (MMRP) for the Mead Valley and Good Hope Water Improvement Project, Perris and Moreno Valley, CA. *Archaeological Monitor.* ESA is assisting EMWD with cultural and biological resources MMRP implementation for this water infrastructure project. Parker monitored trench excavation, pipe installation, backfilling, and compacting for archaeological resources.

EMWD, Mitigation Monitoring and Reporting Program (MMRP) for the Wine Country North and South Sewer Projects, Temecula and Unincorporated Riverside County, CA. *Archaeological and Paleontological Monitor.* ESA is assisting EMWD with cultural and biological resources MMRP implementation for this sewer pipeline project. Parker conducted archaeological and paleontological monitoring for the project.



Parker Reece (Continued)

Archaeological / Paleontological Resources Monitor

California Department of Water Resources (DWR), Emergency Release Facility (ERF) and Lake Perris Outlet Tower Compliance Monitoring, Lakewood, CA. *Archaeological Monitor.* ESA prepared the ERF Environmental Impact Report for DWR, which was certified in May 2018. ESA prepared regulatory permits for the project, which included establishing the project's requirements for the MSHCP. ESA is currently implementing the MMRP for the project. Parker conducted archaeological monitoring for the project.

Private Homeowner, Crescent Bay Drive Residential Project, Laguna Beach, CA. *Archaeological Monitor.* In accordance with the Conditions of Approval for the project, ESA conducted archaeological monitoring services during construction of a new single-family residence. The property is located within the boundary of a precontact/Native American archaeological site and the monitoring was conducted alongside a Native American monitor. Several precontact archaeological resources were encountered during the monitoring effort that were treated in accordance with the conditions of approval.

Natalie Chamberlain

Archaeological / Paleontological Resources Monitor



Natalie Chamberlain is an Archaeological Field Technician with four years experience in Cultural Resource Management throughout California and Arizona. Her studies focused on Forensic Anthropology, Human Osteology and Bioarchaeology; through internship-style classes she gained hands on experience excavating and identifying Native American skeletal remains for the goal of repatriation. Natalie volunteered in the fossil lab at La Brea Tar Pits for three years where she prepared Pleistocene fossils for collections. She is proficient in the identification of human bone, faunal bone, and fossilized remains.

EDUCATION

BA, Anthropology,
California State University
Fullerton

4 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Forensic Anthropology
certificate

Relevant Experience

California Department of Water Resources, Emergency Release Facility and Lake Perris Outlet Tower Compliance Monitoring, Lakewood, CA. *Archaeological Monitor.*

ESA prepared the Emergency Release Facility (ERF) Environmental Impact Report for the Department of Water Resources, which was certified in May 2018. The project proposed to modify the existing emergency release structure for the Perris Dam and construct a water conveyance facility connecting with the Perris Valley Channel. ESA prepared regulatory permits for the project, which included establishing the project's requirements for the MSHCP. ESA is currently implementing the MMRP for the project.

Los Angeles Department of Water and Power, North Haiwee Dam No. 2 Project, Inyo County, CA. *Archaeological Monitor.*

The North Haiwee Dam Safety Project aims to improve the seismic reliability of the North Haiwee Reservoir by constructing a new earthfill embankment dam and realigning Cactus Flats Road and the Los Angeles Aqueduct Channel on both federal and LADWP land in Inyo County. ESA is working with the BLM and LADWP to implement CEQA and Section 106 mitigation commitments that include construction monitoring, Phase I surveys, extended Phase I and Phase II testing, and Phase III data recovery. Natalie performed archaeological monitoring of construction and cultural resource collection and analysis.

Delaney Colorado River Transmission LLC, Ten West Link Transmission Line Project, Riverside County, CA and La Paz County, AZ. *Archaeological Monitor.*

ESA provided cultural resources compliance during construction of the 125-mile, 1,500 kilovolt (kV) series compensated transmission line in Arizona and Nevada. BLM Arizona served as the lead federal agency and the cultural resources work involved construction monitoring and implementing a wide array of cultural resources terms and commitments made under NEPA, NHPA, and other federal authorities. Natalie performed archaeological monitoring of construction across two states and cultural resource documentation and evaluation.

Edwards Air force Base, Edwards Solar Project, Kern County, CA. *Archaeological Field Technician.*

The project required cultural resource compliance per NEPA and CEQA mandates for Edwards Air Force Base to construct the largest solar farm in the state. Natalie conducted an archaeological survey, trenching, screening, hand excavation, laboratory data entry, artifact inventory, and lithic analysis.

Joel Aspeytia

Archaeological / Paleontological Resources Monitor



Joel is an archaeological and paleontological technician with extensive experience conducting archaeological and paleontological construction monitoring in southern California. He attended California State University, San Marcos, and both during and after his schooling, he conducted extensive laboratory work at the San Diego Archaeological Center in Escondido, California.

Relevant Experience

EDUCATION

BA, Indigenous Anthropology, California State University San Marcos

AA, Social Sciences, Palomar Community College

6 YEARS' EXPERIENCE

Irvine Ranch Water District, Syphon Reservoir Geotechnical Investigations Project, Irvine, CA. *Archaeological and Paleontological Monitor.* ESA conducted archaeological and paleontological monitoring services during geotechnical investigations at the Syphon Reservoir site where he gained valuable experience and developed a strong understanding of the sediments and geological formations that exist at the site. He served as archaeological and paleontological monitor for the project and assisted with paleontological sediment sampling during the monitoring effort.

Santiago Saddle Crest LLC, Saddle Crest Project, Orange County, CA. *Archaeological and Paleontological Monitor.* Joel conducted archaeological and paleontological monitoring for the project. The project consisted of a residential development that included the construction of 65 residential lots, fuel modification zones, revegetated/graded open space, a water quality basin, and an equestrian trail.

Los Angeles Department of Water and Power, North Haiwee Dam No. 2 Project, Inyo County, CA. *Archaeological Monitor.* The North Haiwee Dam Safety Project aims to improve the seismic reliability of the North Haiwee Reservoir by constructing a new earthfill embankment dam and realigning Cactus Flats Road and the Los Angeles Aqueduct Channel on both federal and LADWP land in Inyo County. ESA is working with the BLM and LADWP to implement CEQA and Section 106 mitigation commitments that include construction monitoring, Phase I surveys, extended Phase I and Phase II testing, and Phase III data recovery. Joel performed archaeological monitoring of construction and cultural resource collection and analysis.

Eastern Municipal Water District (EMWD), Mitigation Monitoring and Reporting Program (MMRP) for the Mead Valley and Good Hope Water Improvement Project, Perris and Moreno Valley, CA. *Archaeological Monitor.* ESA is assisting EMWD with cultural and biological resources MMRP implementation for this water infrastructure project. Joel monitored trench excavation, pipe installation, backfilling, and compacting for archaeological resources.

EMWD, Mitigation Monitoring and Reporting Program (MMRP) for the Wine Country North and South Sewer Projects, Temecula and Unincorporated Riverside County, CA. *Archaeological and Paleontological Monitor.* ESA is assisting EMWD with cultural and biological resources MMRP implementation for this sewer pipeline project. Joel conducted archaeological and paleontological monitoring for the project.



Joel Aspeytia (Continued)

Archaeological / Paleontological Resources Monitor

California Department of Water Resources (DWR), Emergency Release Facility (ERF) and Lake Perris Outlet Tower Compliance Monitoring, Lakewood, CA. *Archaeological Monitor.* ESA prepared the ERF Environmental Impact Report for DWR, which was certified in May 2018. ESA prepared regulatory permits for the project, which included establishing the project's requirements for the MSHCP. ESA is currently implementing the MMRP for the project. Joel conducted archaeological monitoring for the project.

Franciscan Garden Fire Line Connection Project, San Juan Capistrano, California. *Archaeological Monitor.* The Project included the installation of a four-inch fire line that extended from Camino Capistrano to the Francisco Garden Building located at 31815 Camino Capistrano in the City of San Juan Capistrano. Joel served as archaeological monitor.

Franciscan Garden Fire Line Connection Project, City of San Juan Capistrano, California. *Archaeological Monitor.* Joel conducted archaeological monitoring for the project. The project consisted of the installation of a four-inch fire line extending from the street (Camino Capistrano) to the Franciscan Gardens Building in the City of San Juan Capistrano.

31400 El Camino Real Project, City of San Juan Capistrano. *Archaeological Monitor.* Joel conducted archaeological monitoring for the project. The project involved the construction of a single-family residence.

OC Parks - Aliso and Wood Canyons Wilderness Park Visitor Center Project, County of Orange. *Archaeological Monitor.* Joel conducted archaeological monitoring for the project. The project consisted of the construction of a visitor center and the excavation of a trench for underground utilities.

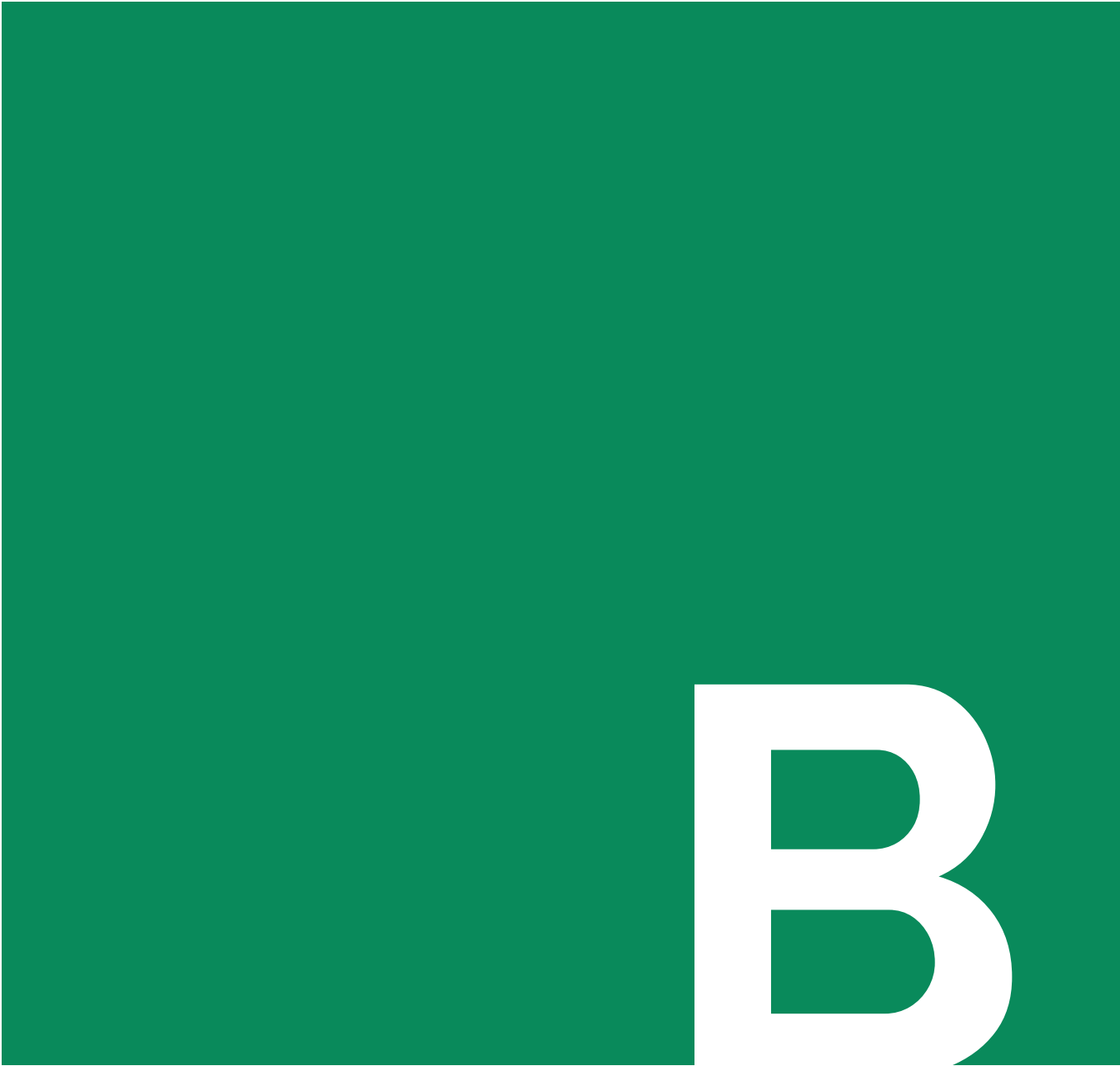
Dehesa Road-Harbison Canyon Road Intersection Improvements Project, County of San Diego Department of Public Works. *Archaeological Monitor.* Joel served as archaeological monitor for several months of construction for the project. Since much of the project occurred on reservation lands of the Sycuan Band of the Kumeyaay Nation, the project required close coordination with Sycuan tribal monitors.

City of San Diego Transportation and Storm Water Department, Channel Maintenance Projects. *Archaeological Monitor.* Joel conducted archaeological monitoring for several channel maintenance projects for the City of San Diego, including Chollas and Auburn Creek Channels.

Sefton Field Archaeological Inventory, City of San Diego Transportation and Storm Water Department. *Archaeological Technician.* Joel participated in an archaeological survey for the Sefton Field habitat restoration and mitigation project in Mission Valley.

Meridian West Campus-Lower Plateau Project, Moreno Valley, California. *Archaeological and Paleontological Compliance Monitor.* The project involved construction of office and commercial facilities, and associated infrastructure. On behalf of March Joint Powers Authority, ESA provided third party compliance for the project, specifically to ensure archaeological and paleontological resources monitoring were conducted in accordance with EIR mitigation measures. Joel served as archaeological and paleontological monitor.

Stella Park Townhomes Project, Escondido, California. *Archaeological Monitor.* The project included the construction of a 65-unit townhome development on a vacant 2.29-acre site. Joel conducted archaeological monitoring for the project.



Insurance





February 10, 2026

Irvine Ranch Water District
c/o Environmental Science Associates
575 Market Street, Suite 3700
San Francisco, CA 94105

Re: Insurance Verification for Irvine Ranch Water District - Syphon Reservoir
Improvement Project Environmental Compliance Monitoring

This is to verify that Environmental Science Associates' is able to meet the insurance requirements set forth in the Irvine Ranch Water District RFP.

If you have any questions regarding the above information, please feel free to contact me.

Thank you.

Sincerely,

A handwritten signature in black ink that reads 'T. Kelly Howell'. The signature is written in a cursive style with a large, prominent 'H'.

Kelly Howell, CIC
IOA Insurance Services

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

RLIPack[®] FOR PROFESSIONALS BLANKET ADDITIONAL INSURED ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESSOWNERS COVERAGE FORM - SECTION II – LIABILITY

1. **C. WHO IS AN INSURED** is amended to include as an additional insured any person or organization that you agree in a contract or agreement requiring insurance to include as an additional insured on this policy, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused in whole or in part by you or those acting on your behalf:

- a. In the performance of your ongoing operations;
- b. In connection with premises owned by or rented to you; or
- c. In connection with "your work" and included within the "product-completed operations hazard".

2. The insurance provided to the additional insured by this endorsement is limited as follows:

- a. This insurance does not apply on any basis to any person or organization for which coverage as an additional insured specifically is added by another endorsement to this policy.
- b. This insurance does not apply to the rendering of or failure to render any "professional services".
- c. This endorsement does not increase any of the limits of insurance stated in **D. Liability And Medical Expenses Limits of Insurance**.

3. The following is added to **SECTION III H.2. Other Insurance – COMMON POLICY CONDITIONS (BUT APPLICABLE ONLY TO SECTION II – LIABILITY)**

However, if you specifically agree in a contract or agreement that the insurance provided to an

additional insured under this policy must apply on a primary basis, or a primary and non-contributory basis, this insurance is primary to other insurance that is available to such additional insured which covers such additional insured as a named insured, and we will not share with that other insurance, provided that:

- a. The "bodily injury" or "property damage" for which coverage is sought occurs after you have entered into that contract or agreement; or
- b. The "personal and advertising injury" for which coverage is sought arises out of an offense committed after you have entered into that contract or agreement.

4. The following is added to **SECTION III K. 2. Transfer of Rights of Recovery Against Others to Us – COMMON POLICY CONDITIONS (BUT APPLICABLE TO ONLY TO SECTION II – LIABILITY)**

We waive any rights of recovery we may have against any person or organization because of payments we make for "bodily injury", "property damage" or "personal and advertising injury" arising out of "your work" performed by you, or on your behalf, under a contract or agreement with that person or organization. We waive these rights only where you have agreed to do so as part of a contract or agreement with such person or organization entered into by you before the "bodily injury" or "property damage" occurs, or the "personal and advertising injury" offense is committed.

ALL OTHER TERMS AND CONDITIONS OF THIS POLICY REMAIN UNCHANGED.

Policy Number: Environmental Science Associates
Named Insured: PSA0002468

RLI Insurance Company

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

RLIPack® BUSINESS AUTO ENHANCEMENT

SCHEDULE OF COVERAGES ADDRESSED BY THIS ENDORSEMENT

- A. Broad Form Named Insured**
- B. Employees As Insureds**
- C. Blanket Additional Insured**
- D. Blanket Waiver Of Subrogation**
- E. Employee Hired Autos**
- F. Fellow Employee Coverage**
- G. Auto Loan Lease Gap Coverage**
- H. Glass Repair – Waiver Of Deductible**
- I. Personal Effects Coverage**
- J. Hired Auto Physical Damage Coverage**
- K. Hired Auto Physical Damage – Loss Of Use**
- L. Hired Car – Worldwide Coverage**
- M. Temporary Transportation Expenses**
- N. Amended Bodily Injury Definition – Mental Anguish**
- O. Airbag Coverage**
- P. Amended Insured Contract Definition – Railroad Easement**
- Q. Coverage Extensions – Audio, Visual And Data Electronic Equipment Not Designed Solely For The Production Of Sound**
- R. Notice Of And Knowledge Of Occurrence**
- S. Unintentional Errors Or Omissions**
- T. Towing Coverage**

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

A. Broad Form Named Insured

The following is added to the **SECTION II – COVERED AUTOS LIABILITY COVERAGE**, Paragraph **A.1. Who Is An Insured** Provision:

Any business entity newly acquired or formed by you during the policy period, provided you own fifty percent (50%) or more of the business entity and the business entity is not separately insured for Business Auto Coverage. Coverage is extended up to a maximum of one hundred eighty (180) days following the acquisition or formation of the business entity.

This provision does not apply to any person or organization for which coverage is excluded by endorsement.

B. Employees As Insureds

The following is added to the **SECTION II – COVERED AUTOS LIABILITY COVERAGE**, Paragraph **A.1. Who Is An Insured** Provision:

Any “employee” of yours is an “insured” while using a covered “auto” you don't own, hire or borrow in your business or your personal affairs.

C. Blanket Additional Insured

The following is added to the **SECTION II – COVERED AUTOS LIABILITY COVERAGE**, Paragraph **A.1. Who Is An Insured** Provision:

Any person or organization that you are required to include as an additional insured on this coverage form in a contract or agreement that is executed by you before the “bodily injury” or “property damage” occurs is an “insured” for liability coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an “insured” under the Who Is An Insured provision contained in **SECTION II – COVERED AUTOS LIABILITY COVERAGE**.

The insurance provided to the additional insured will be on a primary and non-contributory basis to the additional insured's own business auto coverage if you are required to do so in a contract or agreement that is executed by you before the “bodily injury” or “property damage” occurs.

D. Blanket Waiver Of Subrogation

The following is added to the **SECTION IV – BUSINESS AUTO CONDITIONS, A. Loss Conditions, 5. Transfer Of Rights Of Recovery Against Others To Us**:

We waive any right of recovery we may have against any person or organization to the extent required of you by a contract executed prior to any “accident” or “loss”, provided that the “accident” or “loss” arises out

of the operations contemplated by such contract. The waiver applies only to the person or organization designated in such contract.

E. Employee Hired Autos

1. The following is added to the **SECTION II – COVERED AUTOS LIABILITY COVERAGE**, Paragraph **A.1. Who Is An Insured** Provision:

An “employee” of yours is an “insured” while operating an “auto” hired or rented under a contract or agreement in that “employee's” name, with your permission, while performing duties related to the conduct of your business.

2. Changes In General Conditions:

Paragraph **5.b.** of the **Other Insurance** Condition in the **BUSINESS AUTO CONDITIONS** is deleted and replaced with the following:

b. For Hired Auto Physical Damage Coverage, the following are deemed to be covered “autos” you own:

(1) Any covered “auto” you lease, hire, rent or borrow; and

(2) Any covered “auto” hired or rented by your “employee” under a contract in that individual “employee's” name, with your permission, while performing duties related to the conduct of your business. However, any “auto” that is leased, hired, rented or borrowed with a driver is not a covered “auto”.

F. Fellow Employee Coverage

SECTION II – COVERED AUTOS LIABILITY COVERAGE, Exclusion B.5. does not apply if you have workers compensation insurance in-force covering all of your employees.

G. Auto Loan Lease Gap Coverage

SECTION III – PHYSICAL DAMAGE COVERAGE, C. Limit Of Insurance, is amended by the addition of the following:

In the event of a total “loss” to a covered “auto” shown in the Schedule of Declarations, we will pay any unpaid amount due on the lease or loan for a covered “auto”, less:

1. The amount paid under the **PHYSICAL DAMAGE COVERAGE** section of the policy; and

2. Any:

a. Overdue lease/loan payments at the time of the “loss”;

- b. Financial penalties imposed under a lease for excessive use, abnormal wear and tear or high mileage.
- c. Security deposits not returned by the lessor;
- d. Costs for extended warranties, Credit Life Insurance, Health, Accident or Disability Insurance purchased with the loan or lease; and
- e. Carry-over balances from previous loans or leases.

H. Glass Repair – Waiver Of Deductible

SECTION III – PHYSICAL DAMAGE COVERAGE, D. Deductible is amended by adding the following:

No deductible for a covered “auto” will apply to glass damage if the glass is repaired rather than replaced.

I. Personal Effects Coverage

The following is added to **SECTION III – PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions:**

c. Personal Effects Coverage

In the event of a total theft loss of your covered “auto” we will pay up to \$400 for “loss” to wearing apparel and other personal effects which are:

- (1) Owned by an “insured”; and
- (2) In or on your covered “auto”;

No deductible applies to Personal Effects Coverage.

J. Hired Auto Physical Damage Coverage

The following is added to **SECTION III – PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions:**

d. Hired Auto Physical Damage Coverage

If hired “autos” are covered “autos” for Liability Coverage and this policy also provides Physical Damage Coverage for an owned “auto”, then the Physical Damage Coverage is extended to “autos” that you hire, rent or borrow subject to the following:

- (1) The most we will pay for “loss” in any one “accident” to a hired, rented or borrowed “auto” is the lesser of:
 - (a) \$60,000
 - (b) The actual cash value of the damaged or stolen property as of the time of the “loss”; or
 - (c) The cost of repairing or replacing the damaged or stolen property with other property of like kind and quality.

- (2) An adjustment for depreciation and physical condition will be made in the event of a total “loss”.
- (3) If a repair or replacement results in better than like kind or quality, we will not pay for the betterment.
- (4) A deductible equal to the highest Physical Damage deductible applicable to any owned auto will apply.
- (5) This Coverage Extension will not apply to:
 - (a) Any “auto” that is hired, rented or borrowed with a driver; or
 - (b) Any “auto” that is hired, rented or borrowed from your “employee”.

K. Hired Auto Physical Damage – Loss Of Use

The following is added to **SECTION III – PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions:**

- e. We will pay sums which you legally must pay to the lessor of a covered “auto” which you have leased without a driver for thirty (30) days or less for the lessor’s loss of use of the covered “auto”, provided:
 - (1) This insurance provides comprehensive, specified causes of loss or collision covered on the covered “auto”;
 - (2) The loss of use results from the covered “auto” being damaged in an “accident” while you are leasing it.

We will pay up to a maximum limit of \$1,500 for this covered extension.

L. Hired Car – Worldwide Coverage

The following is added to **SECTION II – COVERED AUTOS LIABILITY COVERAGE, A.2. Coverage Extensions:**

f. Hired Car – Worldwide Coverage

- (1) We will pay all sums an “insured” legally must pay as damages because of “bodily injury” or “property damage” to which this insurance applies, caused by an “accident” which occurs outside of the United States of America, the territories and possessions of the United States of America, Puerto Rico and Canada resulting from the maintenance, or use of any covered “auto” of the private passenger type you lease, hire, rent or borrow without a driver for thirty (30) days or less.
- (2) With respect to any claim made or “suit” instituted outside the United States of America, the territories and possessions of the United States of America, Puerto Rico, and Canada:

(a) You shall undertake the investigation, settlement and defense of such claims and “suits” and keep us advised of all proceedings and actions.

(b) You will not make any settlement without our consent.

(c) We will reimburse you:

(i) For the amount of damages because of liability imposed upon you by law on account of “bodily injury” or “property damage” to which this insurance applies, and

(ii) For all reasonable expenses incurred with our consent in connection with the investigation, settlement or defense of such claims or “suits”. Reimbursement for expenses will be part of the Limit of Insurance for liability coverage shown in the Business Auto Coverage Declarations, and not in addition to such limits.

(3) The limit of Insurance for Liability Coverage shown in the Business Auto Coverage Declarations is the most we will reimburse you for the sum of all damages imposed on you, as set forth in paragraph 2.c. above, and all expenses incurred by you arising out of any single “accident” or “loss”.

(4) You must maintain the greater of the following primary auto liability insurance limits:

(a) Compulsory admitted insurance with limits required to be in force to satisfy the legal requirements of the jurisdiction where the accident occurs; or

(b) Insurance limits required by law and issued by a government entity or by an insurer licensed or permitted by law to do business in the jurisdiction where the “accident” occurs; or

(c) Auto liability insurance limits of at least \$300,000 combined single limit or \$100,000 per person/\$300,000 per accident Bodily Injury, \$100,000 Property Damage.

If you fail to comply with the above, this insurance is not invalidated. However, in the event of a “loss”, we will pay only to the extent that we would have been liable had you so complied.

(5) The insurance provided by this coverage extension is excess over any other collectible insurance available to you whether on a primary, excess contingent or any other basis.

M. Temporary Transportation Expenses

SECTION III – PHYSICAL DAMAGE COVERAGE, A.4. Coverage Extensions, subparagraph **a. Transportation Expenses** is deleted and replaced by the following:

a. Transportation Expenses

(1) We will pay up to a maximum of \$1,500 for temporary transportation expense incurred by you because of Physical Damage to a covered “auto”.

(2) We will pay only for those covered “autos” for which you carry Comprehensive, Collision or Specified Case of Loss Coverage.

(3) We will pay only for those expenses incurred by you during the period of time that begins twenty-four (24) hours after the covered “loss” and ends at the time when the covered “auto” can be reasonably repaired or replaced.

(4) This coverage does not apply while there are spare or reserve “autos” available to you for your operations.

N. Amended Bodily Injury Definition – Mental Anguish

The following is added to **SECTION V – DEFINITIONS, Definition C.**:

“Bodily injury” also includes mental anguish, but only when the mental anguish arises from other bodily injury, sickness or disease.

O. Airbag Coverage

The following is added to **SECTION III – PHYSICAL DAMAGE COVERAGE B. Exclusions 3.a.**:

However, this exclusion will not apply to accidental discharge of an airbag due to mechanical or electrical breakdown.

P. Amended Insured Contract Definition – Railroad Easement

SECTION V – DEFINITIONS paragraph H. “Insured contact” is modified as follows:

1. Paragraph H.3. is replaced by the following:

3. Any easement or license agreement.

2. Paragraph H.6.a. is deleted.

Q. Coverage Extensions – Audio, Visual And Data Electronic Equipment Not Designed Solely For The Production Of Sound

SECTION III – PHYSICAL DAMAGE COVERAGE B. Exclusions, exception paragraph **a.** to exclusion **4.c.** and **4.d.** is deleted and replaced with the following:

- a. Equipment and accessories used with such equipment, except for tapes, records, discs or other electronic media device, provided such equipment is permanently installed in the covered "auto" at the time of the "loss" or is removable from the housing unit which is permanently installed in the covered "auto" at the time of the "loss", and such equipment is designed to be solely operated by use of the power from the "autos" electrical system, in or upon the covered "autos"; or

- (2) A partner if you are a partnership; or
- (3) An executive officer or insurance manager, if you are a corporation.

S. Unintentional Errors Or Omissions

SECTION IV – BUSINESS AUTO CONDITIONS, B. General Conditions; 2. Concealment Misrepresentation Or Fraud is amended by adding the following:

The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or nonrenewal.

T. Towing Coverage

SECTION III – PHYSICAL DAMAGE COVERAGE, A.2. Towing, is deleted and replaced by the following:

- 2. We will pay up to \$750 for towing and labor costs incurred each time a covered "auto" is disabled due to a covered cause of loss. However:
 - a. All labor must be performed at the place of disablement; and
 - b. If the covered auto is a private passenger type no deductible applies; and
 - c. If the covered auto is not of the private passenger type our obligation to pay will be reduced by a \$250 deductible per disablement.

R. Notice Of And Knowledge Of Occurrence

SECTION IV – BUSINESS AUTO CONDITIONS, A.2. Duties In The Event Of Accident, Claim Suit Or Loss, subparagraph a. is deleted and replaced with the following:

- a. In the event of "accident", claim, "suit" or "loss", you must give us or our authorized representative prompt notice of the "accident" or "loss" including:
 - (1) How, when and where the "accident" or "loss" occurred;
 - (2) The "insured's" name and address; and
 - (3) To the extent possible, the names and addresses of any injured person and witnesses.

Your duty to give us or our authorized representative prompt notice of the "accident" or "loss" applies only when the "accident" or "loss" is known to:

- (1) You, if you are an individual;

ALL OTHER TERMS AND CONDITIONS OF THIS POLICY REMAIN UNCHANGED.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT—CALIFORNIA

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

You must maintain payroll records accurately segregating the remuneration of your employees while engaged in the work described in the Schedule.

The additional premium for this endorsement shall be 2% of the California workers' compensation premium otherwise due on such remuneration.

Schedule

Person or Organization

All persons or organizations that are party to a contract that requires you to obtain this agreement, provided you executed the contract before the loss.

Job Description

Jobs performed for any person or organization that you have agreed with in a written contract to provide this agreement.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective 12/1/2025

Policy No. PSW0004135

Endorsement No.

Insured

Insurance Company

Environmental Science Associates

RLI Insurance Company

Countersigned By _____



Proposed Contract Modifications



SECTION 9 – CONTRACT

ESA has provided our proposed modifications below to the standard terms and conditions of IRWD's sample professional service agreement. ESA understands that IRWD will consider our proposed modifications during consultant selection and retains the right to reject any portion of the proposed modifications.

Revise Section 1.7 by adding the following:

Consultant and its subconsultants shall take reasonably necessary safety precautions pertaining to their performance of the Services, including, but not limited to, providing appropriate training and safety equipment for its on-site personnel. Consultant shall have no responsibility for safety precautions or the means, methods, techniques, sequences, or procedures required to perform the work or services by any other contractors or consultants or IRWD personnel working on the Project.

Revise Section 5.3 as follows:

5.3 Additional Insured. General liability, automobile liability and ~~all other applicable policies,~~ **including** excess/umbrella liability policies, shall provide, or be endorsed to provide that IRWD, its directors, officers, employees, and agents, are additional insureds under such policies.

Revise Section 6.1 as follows:

6.1 Consultant must indemnify, defend and hold IRWD and its directors, officers, agents, **and** employees, ~~and other entities for which IRWD's directors are the governing body,~~ harmless from all damages, costs, liability claims, losses, judgments, penalties and expenses, including reasonable attorney's fees as a result of or arising out of relating to the Services provided under this Agreement, including but not limited to: ~~(a)~~ any injury to persons (including wrongful death) or property, **but only to the extent** caused by the negligent acts, errors or omissions, or recklessness or willful misconduct of Consultant, its officers, agents or employees, or Consultant's breach of its obligations in performing this Agreement; or ~~(b)~~ any allegation that materials or services provided by the Consultant under this Agreement infringe or violate any copyright, trademark, patent, trade secret, or any other intellectual property or proprietary right of any third party. This indemnification will survive the termination or expiration of the Agreement. **For claims arising out of the personal of professional services, the duty to defend means solely that Consultant agrees to reimburse IRWD for its reasonable defense costs determined to have been caused by Consultant's negligence.**

Revise Section 10.2 as follows:

10.2 Right to the Work Product. All original drawings, concepts, specifications, calculations, estimates, studies, reports, memoranda, records, reference materials, data, charts, renderings, computations, compilations, submittals and any other documents developed or compiled for IRWD under this Agreement, whether hard copy or electronic ("Work Product") are and will remain the property of IRWD, without restriction upon their use or dissemination by IRWD, with the exception of any intellectual property rights contained therein, owned or created by Consultant prior to the Effective Date of the Agreement ~~and disclosed to IRWD when the Work Product is transferred to IRWD~~. IRWD will be entitled to copy and access the Work Product during the progress of the work. Consultant may make and retain copies of the Work Product for its records as desired, but Consultant shall not make the Work Product the subject of a copyright application by Consultant. The Consultant represents and warrants that all materials prepared under this Agreement are original or developed from materials in the public domain (or both) and that all materials prepared under and Services provided under this

Agreement do not and will not infringe or violate any copyright, trademark, patent, trade secret, or other intellectual property or proprietary right of any third party.

Revise Section 12.4 as follows:

12.4 Attorney's Fees. If a Party commences an action against any other Party to enforce its rights or obligations arising from this Agreement, ~~each Party shall be responsible for its own attorney's fees the prevailing Party, in addition to any other relief and recovery awarded by the court, will be entitled to recover all costs plus a reasonable amount of attorney's fees.~~ **each Party shall be responsible for its own attorney's fees**



Irvine Ranch Water District

Budget Proposal: Syphon Reservoir Improvement Project Environmental Compliance Monitoring



April 2, 2026

Project Manager: Maile Tanaka
(310) 387-7833 | MTanaka@esassoc.com

Environmental Science Associates
esassoc.com

BUDGET PROPOSAL

ESA is submitting this budget proposal, including our fee schedule and breakdown of the fee by task, separately from the project proposal, per the RFP. Our breakdown of the fee by task, as shown on the following page, includes an estimate of the hours that each member of the project team will contribute toward the individual tasks depicted in the scope of work. ESA has also identified and provided estimated costs for all reproduction and other direct costs following the task breakdown, as well as provided a table of hourly rates for each person or category shown in the budget.

Task Breakdown

IRWD Syphon Reservoir Environmental Compliance Monitoring		Hotbrook / S. Spar	M. Tanaka	D. GB	A. Lee/B. Mulrooney	D. Travis	Gonzalez/A. Barbo	B. Jones	B. Mukogawa	M. Saucedo (GIS)	K. Garcia (PM)	J. Stewart (Paleo)	F. Clark (DPM)	S. Bocchierian	Alex B. OT	Brandon Jones OT	Blended Monitor Rat	A. Guzman (Pub)	Natalie, Connor, Keir	Osgueda/Account	TOTAL ESA LABOR COST & FEES					Total	TOTAL	TOTAL	
		Principal Consultant 3	Managing Consultant 3	Managing Consultant 3	Senior Consultant 3	Associate Consultant 3	Associate Consultant 3	Consultant 4	Consultant 4	Associate Consultant 3	Principal Consultant 4	Senior Consultant 6	Managing Consultant 3	Senior Consultant 3	Project Technician 3	Project Technician 1	Consultant 2	Senior Consultant 4	Project Technician 2	Project Technician 4	ESA Total Hours	ESA Labor Subtotal (\$)	Rate Escalation	Technology & Data Management Fee	Total Labor Fee	ESA Labor Cost	TOTAL	TOTAL	
		\$261	\$246	\$246	\$187	\$154	\$154	\$129	\$129	\$154	\$286	\$219	\$246	\$187	\$174	\$144	\$120	\$210	\$164	\$145						\$	\$	\$	\$
1.1	Confirm Fencing for Avoidance and Disturbance Limits		2			8	8		1												19.00	\$ 2,912	\$ -	\$ 73	\$ 73	\$ 2,985	\$ -	\$ 2,985	
1.2	Implement Worker Environmental Awareness Program		2			16	8														26.00	\$ 3,980	\$ -	\$ 100	\$ 100	\$ 4,080	\$ -	\$ 4,080	
1.3	Conduct Pre-Project Surveys		3		8	24	16	11	5												67.00	\$ 10,191	\$ -	\$ 255	\$ 255	\$ 10,446	\$ -	\$ 10,446	
1.4a	Conduct Biological Compliance Monitoring (Year 1)			128	671	737	224	416						140	160						2,476.00	\$ 406,162	\$ 7,108	\$ 10,154	\$ 17,262	\$ 423,424	\$ 20,716	\$ 444,139	
1.4b	Conduct Biological Compliance Monitoring (Year 2)			60	537	423	224	416						140	160						1,960.00	\$ 316,072	\$ 16,594	\$ 7,902	\$ 24,496	\$ 340,568	\$ 15,617	\$ 356,185	
1.4c	Conduct Biological Compliance Monitoring (Year 3)			60	537	423	224	416						140	160						1,960.00	\$ 316,072	\$ 27,656	\$ 7,902	\$ 35,558	\$ 351,630	\$ 15,617	\$ 367,247	
1.4d	Conduct Biological Compliance Monitoring (Year 4)			60	537	423	224	416						140	160						1,960.00	\$ 316,072	\$ 38,719	\$ 7,902	\$ 46,621	\$ 362,693	\$ 15,617	\$ 378,310	
1.5a	Prepare Compliance Reports (Year 1)		80					270	104					454.00	\$ 70,614	\$ 1,236	\$ 1,765	\$ 3,001	\$ 73,615										
1.5b	Prepare Compliance Reports (Year 2)		72					250	84					406.00	\$ 62,982	\$ 3,307	\$ 1,575	\$ 4,881	\$ 67,863										
1.5c	Prepare Compliance Reports (Year 3)		72					250	84					406.00	\$ 62,982	\$ 5,511	\$ 1,575	\$ 7,086	\$ 70,068										
1.5d	Prepare Compliance Reports (Year 4)		78					290	92					460.00	\$ 70,866	\$ 8,681	\$ 1,772	\$ 10,453	\$ 81,319										
1	Biological Surveys and Monitoring		309	308	2290	2030	920	1696	1071	370				560	640						10,194.00	\$ 1,638,916	\$ 108,811	\$ 40,973	\$ 149,784	\$ 1,788,699	\$ 67,567	\$ 1,856,266	
2.1	Confirm Boundary of Environmentally Sensitive Areas Around Cultural Resources										2						12				14.00	\$ 2,008	\$ -	\$ 50	\$ 50	\$ 2,058	\$ 44	\$ 2,102	
2.2	Conduct Worker Sensitivity Training (2 Trainings by Archaeo and Paleo)										4	8	4	6							22.00	\$ 5,003	\$ -	\$ 125	\$ 125	\$ 5,128	\$ 242	\$ 5,370	
2.3a	Conduct Cultural Resources and Paleontological Compliance Monitoring (Year 1)									10			25.25	75.75			2373.5		1010		3,494.50	\$ 471,694	\$ 8,255	\$ 11,792	\$ 20,047	\$ 491,741	\$ 11,999	\$ 503,740	
2.3b	Conduct Cultural Resources and Paleontological Compliance Monitoring (Year 2)									10			25.25	75.75			2373.5		1010		3,494.50	\$ 471,694	\$ 24,764	\$ 11,792	\$ 36,556	\$ 508,251	\$ 11,999	\$ 520,249	
2.3c	Conduct Cultural Resources and Paleontological Compliance Monitoring (Year 3)									10			25.25	75.75			2373.5		1010		3,494.50	\$ 471,694	\$ 41,273	\$ 11,792	\$ 53,066	\$ 524,760	\$ 11,999	\$ 536,759	
2.6	Prepare Archaeological and Paleontological Monitoring Reports								6	12	10		28			16	2				74.00	\$ 14,121	\$ 988	\$ 353	\$ 1,341	\$ 15,462	\$ -	\$ 15,462	
2	Cultural Resources and Paleontological Monitoring								36	18	18	79.75	261.25			7148.5	2	3030			10,693.50	\$ 1,436,216	\$ 75,280	\$ 35,905	\$ 111,186	\$ 1,547,401	\$ 36,282	\$ 1,583,683	
3.1	BIO_Regular Construction Management Coordination (Year 1)		92	156					52											6	306.00	\$ 69,992	\$ 1,225	\$ 1,750	\$ 2,975	\$ 72,967	\$ 528	\$ 73,495	
3.2	BIO_Regular Construction Management Coordination (Year 2)		72	108					52											6	238.00	\$ 52,967	\$ 2,781	\$ 1,324	\$ 4,105	\$ 57,072	\$ 396	\$ 57,468	
3.3	BIO_Regular Construction Management Coordination (Year 3)		12	108					52											6	178.00	\$ 37,270	\$ 3,262	\$ 932	\$ 4,194	\$ 41,473	\$ 396	\$ 41,869	
3.4	BIO_Regular Construction Management Coordination (Year 4)		12	108					52											12	184.00	\$ 38,146	\$ 4,673	\$ 954	\$ 5,627	\$ 43,773	\$ 396	\$ 44,169	
3.5	BIO_Agency Coordination		80	80					40												200.00	\$ 45,756	\$ 3,203	\$ 1,144	\$ 4,347	\$ 50,103	\$ -	\$ 50,103	
3.6	CULT_Regular Construction Management Coordination (Year 1)		12							113	12	101								6	244.00	\$ 63,800	\$ 1,116	\$ 1,595	\$ 2,711	\$ 66,511	\$ 242	\$ 66,753	
3.7	CULT_Regular Construction Management Coordination (Year 2)		12							113	12	101								6	244.00	\$ 63,800	\$ 3,349	\$ 1,595	\$ 4,944	\$ 68,744	\$ 242	\$ 69,986	
3.8	CULT_Regular Construction Management Coordination (Year 3)		12							113	12	101								6	244.00	\$ 63,800	\$ 5,582	\$ 1,595	\$ 7,177	\$ 70,977	\$ 242	\$ 71,219	
3	Project Management	304	560						248		339	36	303							48	1,838.00	\$ 435,540	\$ 25,192	\$ 10,888	\$ 36,080	\$ 471,620	\$ 2,442	\$ 474,062	
2.4	Conduct Inadvertent Discovery Evaluations and Prepare Treatment Plans		1						4	28	28			40							101.00	\$ 22,493	\$ -	\$ 562	\$ 562	\$ 23,056	\$ 330	\$ 23,386	
2.4	Optional Task: Conduct Inadvertent Discovery Evaluations and Prepare Treatment Plans		1						4	28	28			40							101.00	\$ 22,493	\$ -	\$ 562	\$ 562	\$ 23,056	\$ 330	\$ 23,386	
2.5	Treatment Plan Implementation (Allowance)		1							20	20	20		80			181.475				322.48	\$ 51,948	\$ -	\$ 1,299	\$ 1,299	\$ 53,247	\$ -	\$ 53,247	
2.5	Optional Task: Treatment Plan Implementation (Allowance)		1							20	20	20		80			181.475				322.48	\$ 51,948	\$ -	\$ 1,299	\$ 1,299	\$ 53,247	\$ -	\$ 53,247	
	Total Hours	304	871	308	2290	2030	920	1696	1319	410	405	102	402.75	381.25	560	640	7329.975	2	3030	48	23,048.98								
	Total (\$ Amount)	\$ 79,486	\$ 214,652	\$ 75,692	\$ 428,504	\$ 312,286	\$ 141,529	\$ 219,570	\$ 170,762	\$ 63,073	\$ 115,928	\$ 22,341	\$ 98,977	\$ 71,339	\$ 97,623	\$ 92,198	\$ 876,987	\$ 419	\$ 497,405	\$ 6,940		\$ 3,585,111	\$ 209,283	\$ 89,628	\$ 298,911	\$ 3,884,022	\$ 106,621	\$ 3,990,644	
	Total Hours without Optional Tasks	304	869	308	2290	2030	920	1696	1319	406	357	54	382.75	261.25	560	640	7148.5	2	3030	48	22,625.50								
	Total (\$ Amount without Optional Tasks)	\$ 79,486	\$ 213,560	\$ 75,692	\$ 428,504	\$ 312,286	\$ 141,529	\$ 219,570	\$ 170,762	\$ 62,457	\$ 102,188	\$ 11,828	\$ 94,062	\$ 48,885	\$ 97,623	\$ 92,198	\$ 855,274	\$ 419	\$ 497,405	\$ 6,940		\$ 3,510,669	\$ 209,283	\$ 87,767	\$ 297,050	\$ 3,807,719	\$ 106,291	\$ 3,914,011	

PROJECT COST ESTIMATE SUMMARY TABLE

ESA Labor	\$ 3,585,111
Annual Rate Escalation Allowance	\$ 209,283
Contingency	\$ -
Technology and Data Management Fee	3% \$ 89,628
ESA Labor Amount	\$ 3,884,022
ESA Non-Labor Expenses	
Reimbursable Expenses (see Attachment A for detail)	\$ 106,621
ESA Equipment Usage (see Attachment A for detail)	\$ -
Subtotal ESA Non-Labor Expenses	\$ 106,621
Subconsultant Costs	\$ -
PROJECT TOTAL	\$ 3,990,644



Attachment A
Cost Proposal: ESA Non-Labor Expenses Summary

Reimbursable Expenses	
Project Supplies	\$ -
Printing/Reproduction	\$ -
Document and Map Reproductions (CD + Digital Photo)	\$ -
Postage and Deliveries	\$ -
Mileage	\$ 78,179
Vehicle Rental	\$ 14,720
Lodging	\$ -
Airfare	\$ -
Other Travel Related	\$ -
Gas for Car Rentals	\$ 4,030
-	\$ -
-	\$ -
<i>Subtotal Reimbursable Expenses</i>	\$ 96,929
<i>10% Fee on Reimbursable Expenses</i>	\$ 9,693
Total Reimbursable Expenses	\$ 106,621
<hr/>	
TOTAL NON-LABOR EXPENSES	\$ 106,621

Fee Schedule

I. Personnel Category Rates

Charges will be made at the Category hourly rates set forth below for time spent on project management, consultation or meetings related to the project, field work, report preparation and review, travel time, etc.

LABOR CATEGORY	BILLING STEP I	BILLING STEP II	BILLING STEP III	BILLING STEP IV	BILLING STEP V	BILLING STEP VI
Senior Principal Consultant	\$261	\$288	\$317	\$347	\$379	\$409
Principal Consultant	\$222	\$253	\$261	\$286	\$341	\$370
Managing Consultant	\$205	\$228	\$246	\$277	\$301	\$324
Senior Consultant	\$171	\$189	\$187	\$210	\$219	\$279
Associate Consultant	\$154	\$170	\$154	\$198	\$213	\$228
Consultant	\$116	\$120	\$144	\$129	\$173	\$188
Project Technician	\$86	\$109	\$131	\$150	\$170	\$194

- (a) The range of rates shown for each staff category reflects ESA staff qualifications, expertise and experience levels. These rate ranges allow our project managers to assemble the best project teams to meet the unique project requirements and client expectations for each opportunity.
- (b) From time to time, ESA retains outside professional and technical labor on a temporary basis to meet peak workload demands. Such contract labor may be charged at regular Employee Category rates.
- (c) ESA reserves the right to revise the Personnel Category Rates periodically to reflect staff promotions and updated costs.
- (d) Hourly rates shown are good for the calendar year and are subject to an annual escalation of 3.5%. This is already factored into the Project’s cost spreadsheet.
- (e) Overtime is compensable at straight hourly rates, except for non-exempt employees, for which overtime will be charged at 1.5 times the rates shown. This is already factored into the Project’s cost spreadsheet.
- (f) Staff labor categories may be subject to change over the 5-year project duration due to promotions and related rate adjustments.

II. ESA Expenses

A. Travel Expenses

1. Transportation
 - a. Company vehicle – fixed rate + fee for mileage in excess of 100 miles.
 - b. Common carrier or car rental – actual expense multiplied by 1.15
 - c. If company vehicle is to be used in off-road conditions, a daily \$15 use fee will be added to the standard daily vehicle rate.

2. Lodging, meals and related travel expenses – direct expenses multiplied by 1.15

B. Technology and Data Management Fee

Starting January 2023, ESA implemented a 2.5% Technology and Data Management fee on all applicable contracts, excluding charges related to equipment rentals, reimbursable expenses, and subcontractor fees. This fee plays a pivotal role in mitigating an array of technology and data management expenditures incurred by ESA to ensure the delivery of the comprehensive and high-quality services our clients expect. These expenses include, but are not limited to:

- **Long-Term Data Retention and Security Administration:** Covering the expenses associated with administering the protection of client data and assets throughout and beyond the contractual period.
- **Development and Maintenance of Internal ESA Software Tools:** Accounting for the ongoing investments required to create and maintain tools integral to our client engagements.
- **Data Privacy and Security Maintenance:** Encompassing the costs involved in maintaining data privacy and security, including regular security audits to uphold the highest standards.
- **Advanced Technology-Related Costs:** Addressing the escalating expenses associated with subscriptions for cutting-edge technical software, licenses, and cloud data services.

This fee structure enables ESA to uphold its commitment to providing clients with top-tier services while managing the ever-evolving demands of technology and data management in the work that we do.

C. Cloud-based Services

ITEM	RATE/HOUR	RATE/DAY	RATE/WEEK	RATE/MONTH
Cloud-based Services				
Nearmap High Resolution Images		\$55/image		
ArcGIS Online Hosting (Web Maps/Apps)				\$225
Website Hosting				\$200
Custom Application & Services Hosting*				\$300*
Modeling (GeoHECRAS, TUFLOW, Delft3D) + Drone Processing	\$7	\$160	\$950	\$3,900
Aviation Environmental Design Tool (AEDT) Processing	\$13	\$190	\$1,120	\$4,600
*includes support for database, SSL, IT support – costs vary by project. Contact software development services for firm pricing.				

D. Printing/Reproduction Rates

If a weekly or monthly rate is not provided, equipment usage is billed at a daily rate.

ITEM	RATE/PAGE	SAMPLE PRICING
Black & White – 8.5 x 11	\$0.15	
Black & White – 11 x 17	\$0.30	
Color – 8.5 x 11	\$0.50	
Color – 11 x 17	\$0.80	

B&W – Plotter (Toner – ECO Quality)	\$0.50/sf	24x36 B/W CAD drawing would cost \$3 per sheet
B&W – Plotter (Toner – Presentation Quality)	\$1.25/sf	24x36 B/W CAD drawing would cost \$7.50 per sheet
Color – Plotter (Inkjet – ECO Quality)	\$2.50/sf	24x36 Color Drawing would cost \$15 per sheet
Color – Plotter (Inkjet – Presentation Quality)	\$5.00/sf	24x36 Color Drawing would cost \$30 per sheet
CD	\$10.00	
Digital Photography	\$20.00 (up to 50 images)	
All Other Items (including bindings and covers)	At cost plus 10%	

E. Equipment Rates

ITEM	RATE/DAY	RATE/WEEK	RATE/MONTH
Project Specific Equipment:			
Vehicles – Standard size (no off-road usage)	\$ 115 ^a	\$ 550 ^a	
Vehicles – 4x4 /Truck (light duty)	175 ^a		
Vehicles – 4x4 /Truck (heavy duty)	200 ^a		
Vehicles – ATV	175		
Noise Meter	115		
Hydroacoustic Noise Monitoring Equipment	175		
Satellite Phone	15	70	250
Electrofisher	350	1,750	
Field Traps	50		
Digital Hypsometer (Nikon)	25		
Backpack Sprayer	30		
360-Degree 4k Camera	35	175	
High Resolution Time-Lapse Camera	20	100	350
Beach Seine	60		
Block Net	30		
PIT Tagging Kit	25		
Underwater Light Meter		500	
Otter Trawl	115		
Wildlife Acoustics Bat Detector	125	400	
Wildlife Trail Camera	30	100	
Fiber Optic Endoscope	150	750	
Spotting Scope	50	200	
Sand Transport Station			460
Wind Monitoring Station			1540
Personal Protective Equipment (PPE)	25		
Photo and Video Production Equipment:			
Mirrorless Camera + Lens + SD Card	220	550	2000
Tripod + Camera Case	50	175	500
Lighting Equipment	20	75	250
Shotgun Microphone Kit	15	50	180
2 Person Microphone Kit	10	25	85
Topographic/Bathymetric Survey Equipment:			
Total Station	300		

UAV/Drone	300	1,500	
RTK-GPS	300		
RTK-GPS Smartnet Subscription	80		
Hypack Survey Software	150		
Laser/Auto Level	50		
Single-Beam Echoshounder	175	600	
Sidescan Sonar	200		
Sound Velocity Profiler	75		
1m GNSS Data Collection System	90	425	1,700
Sub-meter GNSS Data Collection System	120		
Sub-foot Data Collection System	245		
Garmin GPS or equivalent	45		

Hydrologic Data Collection, Water Current, Level and Wave Measurement Equipment:

ISCO 2150 Area Velocity Flow Logger	\$ 50	\$ 300	\$ 800
SonTek IQ-Plus Area Velocity Flow Logger	100	500	1,500
Logging Rain Gage	10	50	200
Hand-Held Current Meter	50		
Surface Velocity Radar	50		
Wave Pressure Sensor		115	460
Wave Buoy		175	700
Sonic Wave Sensor	35	175	500
Logging Water Level - Pressure Transducer			125
Logging Barometric Pressure Logger			60
Well Probe / Water Level Meter	25		
Bottom-Mounted Tripod / Mooring	30	150	400

ITEM	RATE/DAY	RATE/WEEK	RATE/MONTH
Stormwater Crest Sampler			20
ADCP Riverboard	700		
Radar Wave Sensor with Logger Box	150	300	1000

Water Quality Equipment:

Logging Turbidimeter/Water Level Recorder	\$	\$	\$ 400
Logging Conductivity/Water Level Recorder			250
Remote Monitoring Logger Box		75	250
Recording Conductivity Meter w/Datalogger	20	60	200
Hand-Held Turbidimeter	50	200	
Hand-Held Salinity Meter or pH meter	35		
Logging Salinity Gauge			150
Logging DO/Temp Probe			150

Logging Water Quality Sonde 1 Sensor	50	200	700
Logging Water Quality Sonde 2 Sensor	65	250	800
Logging Water Quality Sonde 3 Sensor	75	300	900
Logging Water Quality Sonde 4 Sensor	90	350	1,000
Telemetry System Hardware			125
Water Quality Multi-Probe Depth Profiler	200		
Niskin Water Sampler	50		
ISCO 6712 Portable Sampler w/ISCO 2105 Module	60	350	900
Sedimentation / Geotechnical Equipment:			
Peat Corer	\$ 85		
60lb Helly-Smith Bedload Sampler	200		
Mini-Ponar Grab Sampler	50		
DH-76 Suspended Sediment Sampler	100		
D-96 Suspended Sediment Sampler	200		
Bridge Crane	150		
RSET	50		
AMS Soil Sampling Kit	50		
Hand-Held Helley-Smith Bedload Sampler	30		
Guelph Permeameter	60		
Sludge Sampler	60		
Shear Strength Vane	60		
Handheld DH-48 Suspended Sediment Sampler	30		
Boats:			
Small Watercraft	\$ 100	\$ 400	
15'-17' Boat	375	1,500	

18'-21' Boat	450	2,000
22'-25' Boat	550	2,250
Houseboat Floating Laboratory		4,500

^a Actual project charges will include the daily rate plus \$0.75 per beyond 100 miles

III. Other

The fees above do not include sales tax. Any applicable or potential sales tax will be charged when appropriate.

IV. Payment Terms

Unless otherwise agreed in writing, ESA will submit invoices on a monthly basis. Any unpaid balances shall draw interest at one and one half percent (1.5%) per month or the highest rate allowed by law, whichever is lower, commencing thirty (30) days after date of invoice. All invoices not contested in writing within fifteen (15) business days of receipt are deemed accepted by Client as true and accurate and Client thereafter waives any objection to Clients invoices, which are payable in full.

April 21, 2026

Prepared by: L. Hatch

Submitted by: P. Weghorst

Approved by: Paul A. Cook



ENGINEERING AND OPERATIONS COMMITTEE

LOCAL RESOURCES PROGRAM FUNDING FOR SYPHON RESERVOIR IMPROVEMENT PROJECT

SUMMARY:

IRWD has been working with Municipal Water District of Orange County (MWDOC) to prepare a Local Resources Program (LRP) funding application to Metropolitan Water District for the Syphon Reservoir Improvement Project. If approved by the Metropolitan Board, IRWD could receive an estimated total incentive of \$4.7 million over the first eight years of operation of the Project. Below is an overview of the LRP application process and the associated next steps. Staff recommends that the Board authorize the General Manager to execute an agreement with Metropolitan for LRP funding for the Syphon Reservoir Improvement Project.

BACKGROUND:

Metropolitan offers financial incentives to construct new or expand existing water recycling projects through its LRP. The program invests in projects that reduce demand for imported water supplies and increase water supply reliability in Metropolitan's service area. Qualified projects must also include construction of new treatment or distribution facilities. With the support of MWDOC, staff is preparing an LRP application for the Syphon Reservoir Improvement Project consistent with Metropolitan's guidelines provided as Exhibit "A".

To receive LRP incentives, IRWD's application must be approved by the Metropolitan Board of Directors before construction of the Project begins in late summer of this year. All environmental compliance work is complete and all permits have been secured, which is a requirement for Metropolitan approval. Metropolitan will only provide LRP incentives for the cost of water from a project that exceeds the Metropolitan full-service rate for treated water.

Project Overview:

IRWD's Syphon Reservoir Improvement Project will replace the existing dam with a new dam, increasing the reservoir's recycled water storage capacity from 500 AF to 5,000 AF. New treatment facilities would be constructed at the toe of the new dam to provide filtration, chlorination, and de-chlorination. The Project includes recycled water distribution facilities to move water in and out of the reservoir that will be integrated into IRWD's recycled water system.

The increased reservoir storage, new treatment facility, and associated distribution facilities, will reduce the need for IRWD to purchase 2,680 AF per year of imported water from Metropolitan to meet non-potable water demands during the summer. The Project will provide a local stored water supply that will benefit Orange County, which will improve the water supply reliability of Metropolitan's service area.

Expected LRP Incentives:

In the LRP application, IRWD will be requesting \$475 per AF over 15 years of recycled water stored and used from the reservoir. With the construction bids for the Project coming in substantially lower than the engineers estimate, the cost of water from the Project is expected to exceed the cost of treated imported water from Metropolitan by \$430 per acre-foot in the first year of operation. By the end of the eighth year of operation, the cost of water from the Project is expected to exceed the Metropolitan treated rate, which will limit IRWD's total incentive to \$4.7 million.

Next Steps:

On April 14, the Metropolitan Board of Directors approved its two-year budget and affirmed that it will continue to accept LRP applications. Staff is working with MWDOC to prepare the LRP application for the Project that will be submitted to Metropolitan by the end of the month. On April 27, staff will present to the IRWD Board the application and a draft LRP funding agreement for its consideration. Staff recommends that the Board authorize the General Manager to execute an LRP funding agreement with Metropolitan for the Project. Staff expects that Metropolitan Board will consider IRWD's application and the corresponding agreement later in the summer.

FISCAL IMPACTS:

IRWD can only claim in its LRP application a prorated amount of the construction cost of the Project that corresponds to the 2,680 AFY reduction in purchases of imported water. This prorated amount is estimated at \$127.5 million. The remainder of the construction cost will correspond to a reduction in production of groundwater. Considering a prorated amount of the grants that have been awarded to the project, the amortized capital cost of recycled water from the project that will offset purchases of Metropolitan water is \$2,654 per acre-foot. This unit cost is expected to be \$430 per acre-foot greater than the cost of treated water from Metropolitan in 2032, which is the expected first year of operation of the project. By the end of the eighth year, the amortized cost of water from the project will exceed the Metropolitan rate, which will limit IRWD's total incentive to \$4.7 million.

ENVIRONMENTAL COMPLIANCE:

The Syphon Reservoir Improvement Project is subject to the California Environmental Quality Act (CEQA). The Syphon Reservoir Improvement Project Final Environmental Impact Report (EIR) was adopted by the IRWD Board of Directors on July 26, 2021. Addendum No. 1 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on August 26, 2024. Addendum No. 2 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on May 12, 2025. Addendum No. 3 to the Syphon Reservoir Improvement Project Final EIR was adopted by the IRWD Board of Directors on October 27, 2025. Corresponding Notices of Determinations were filed with the County of Orange.

RECOMMENDATION:

That the Board authorize the General Manager to execute an agreement with Metropolitan Water District of Southern California for Local Resource Program funding for the Syphon Reservoir Improvement Project.

LIST OF EXHIBITS:

Exhibit "A" – Metropolitan Guideline for LRP Applications.

Note: This page is intentionally left blank.



Local Resources Program

Application Guidelines

Background

The Metropolitan Water District of Southern California (Metropolitan) has a long history in developing programs and approaches for encouraging the development of local resources. Metropolitan's Local Resources Program (LRP) was created to provide financial incentives to local projects such as water recycling, groundwater recovery, and seawater desalination projects developed by local and member agencies. The LRP was designed to accelerate the development of these local projects in an effort to reduce the demands for imported water supplies and increase water supply reliability in the region. Today, nearly one-half of the total recycled water and groundwater recovery production in Metropolitan's service area is developed by LRP supported projects.

Metropolitan is accepting applications for development of these local projects under the LRP. This application package includes information regarding funding, eligibility and the application review process. Additional copies of this application package may be downloaded from Metropolitan's website at: www.mwdh2o.com/LRP. We look forward to working with all applicants to bolster our region's water supply reliability.

Objective

The LRP provides funding for the development of water recycling, groundwater recovery, and seawater desalination supplies that offsets an existing demand or prevents a new demand on Metropolitan's imported water deliveries either through direct replacement of imported water or increased regional groundwater production.

Application Submittals

Project applications will be accepted on an open and continuous basis until the target yield of 170,000 acre-feet (AF) per year is fully subscribed. For further coordination or questions, contact Ms. Nadia Hardjadinata (213) 217-6445 or via email at NHardjadinata@mwdh2o.com.

Applications shall address all questions listed in the Application Requirements section below. Application packets must be submitted as PDF documents and emailed to LocalResourcesProgram@mwdh2o.com.

Who Can Apply

The LRP is open to public and private water agencies within Metropolitan's service area. Applications must be made through the applicant's respective Metropolitan member agency. Applicants are strongly encouraged to initiate early coordination with Metropolitan regarding proposed projects. Submittal of an LRP application does not signify or guarantee funding approval by Metropolitan.

Eligible Projects

Eligible projects are new water recycling, groundwater recovery, and seawater desalination projects in Metropolitan's service area. Unless otherwise approved by Metropolitan, proposed projects must comply with the following general requirements:

1. Project must replace an existing demand or prevent a new demand on Metropolitan's imported water deliveries either through direct replacement of potable water or increased regional groundwater production.
2. Project must not exist or be under construction prior to application submittal.
3. Project must include construction of new substantive treatment or distribution facilities.
4. Proposals must be supported by a Metropolitan member agency.
5. Project must be owned and operated by the applicant. Metropolitan has no ownership or operational obligations for a project.
6. Project must comply with the Metropolitan Water District Act and other applicable laws and regulations.
7. Project must comply with California Environmental Quality Act (CEQA) and/or National Environmental Protection Act (NEPA) provisions prior to Metropolitan's Board of Directors' authorization.
8. Project must have obtained all required Regional and State permits prior to seeking Metropolitan's Board of Directors' authorization.
9. Additional requirements specific to each project will be developed to address system integration issues related to use of Metropolitan's facilities, if needed.
10. Metropolitan's Board of Directors must authorize funding for each project prior to executing an LRP agreement.

Strong consideration will be given to projects that are well positioned for construction and timely production of stated project capacities in the near future. Projects with long ramp-up schedules may be addressed in phases, but the applicant must apply for each phase separately and time the application submittal so that the project can meet the LRP deadlines for construction and operation.

Expansion of an existing project may be eligible on a case-by-case basis. For an expansion project to be eligible, the applicant must be committed for the expansion to produce water above the existing facility annual production AF.

Program Funding

There are three LRP incentive payment structure options to choose from:

- Option 1: Sliding scale incentives up to \$340 per acre-foot over 25 years
- Option 2: Sliding scale incentives up to \$475 per acre-foot over 15 years
- Option 3: Fixed incentive up to \$305 per acre-foot over 25 years.

Please note that:

- ✓ One option must be chosen at the time of application.
- ✓ A new application must be submitted if the applying agency (Agency) is requesting a different option.
- ✓ A combinations of options will not be permitted.
- ✓ Incentive commitments are contingent upon approval by Metropolitan’s Board of Directors.
- ✓ Option 3 is a fixed incentive. ***There will be no re-negotiation in the future once the incentive rate is established in the agreement.***
- ✓ Annual cost reconciliation is required for sliding scale incentive options.
- ✓ Project funding source document is required.

Application Process Overview

Project applications will be accepted on an open and continuous basis until the target yield of 170,000 AF per year is fully subscribed. Applications must be submitted prior to start of construction. The following documents must be submitted to Metropolitan to start the process.

- a. Where Agency is not a Metropolitan Member Agency, a supporting letter by Agency’s Metropolitan member agency (Member Agency)
- b. A completed LRP application for the project per the application guidelines below
- c. California Environment Quality Act (CEQA) documents
- d. Permits – either obtained or in process, and
- e. Any other requested documents

After submittal, Metropolitan will send a letter/email to Agency acknowledging the receipt of the application and explanation of its review process. Agency may proceed with the project construction upon the receipt of this letter/email. However, such construction is at Agency’s sole financial risk and Metropolitan will not be obligated to make any payments unless and until Metropolitan’s Board’s approval and execution of an agreement for funding the Project.

After an initial review, Metropolitan will meet with Agency to ensure an accurate understanding of project features and LRP terms. Applications will be reviewed for compliance with general program requirements outlined in Attachment C.

Metropolitan, at its sole discretion, may reject any and all applications and revise the terms of the LRP at any time.

Agreement Process Overview

If a project qualifies, and all environmental documents and permits are submitted:

1. Metropolitan will provide a draft LRP agreement for Member Agency, and if applicable, the retail agency;
2. Agency's Board, and if applicable, the retail agency's Board must approve the draft LRP agreement or grant approvals to enter into the LRP agreement for the project;
3. After approval(s), Metropolitan will seek approval from Metropolitan's Board of directors.

Authorization of the LRP project funding agreement is contingent upon approval of Metropolitan's Board of Directors. Metropolitan, Agency, and if applicable Member Agency, and retail agency must be parties to the LRP agreement.

Annual Cost Reconciliation and Production Assessment

An annual reconciliation is required for sliding scale incentive options (Option 1 and Option 2). An annual production assessment is required for all option. *See attachment C – Incentive Payment Options below for details.*

As outlined in Attachment C, sliding scale incentives are calculated annually based on the actual project unit cost exceeding Metropolitan current full-service water rate as established by Metropolitan's Administrative Code § 4401.

Prior to each fiscal year of operation, Metropolitan will set an estimated LRP incentive rate for deliveries during the year. At the end of each fiscal year, Metropolitan will conduct a cost reconciliation to determine the actual LRP incentive rate based on the actual project unit cost exceeding Metropolitan's full service water rate in that year.

After reconciliation, over- or under-payment adjustments are made between Metropolitan and Agency. The calculated incentive rate may diminish in future years as Metropolitan's water rates increase or the project unit costs decrease as annual yield increases.

Performance Provisions

Performance provisions will be included in all agreements to encourage timely and responsive project development and production. These provisions reduce or withdraw Metropolitan's financial commitment to projects that do not meet development and production milestones outlined in the following table.

Milestone	Timeline (full fiscal year)	Consequence if target is not achieved
Start construction	2 years after agreement execution	Terminate agreement*
Start operation	4 years after agreement execution	Terminate agreement*
50 percent of contract yield	4-7 years after agreement execution	Reduce ultimate yield by shortfall to meet target using the highest annual yield in the 4-year period
75 percent of contract yield**	8-11 years after agreement execution	Same as above
75 percent of contract yield**	12-15 years and every four years thereafter	Same as above

*Agencies may appeal termination to Metropolitan's Board of Directors.

**Ultimate yield or revised ultimate yield specified in the incentive contract due to project's performance in previous years (if applicable)

LOCAL RESOURCES PROGRAM APPLICATION GUIDELINES

At a minimum, applicants must include the following information for Metropolitan to evaluate project eligibility for LRP funding:

1) Project Overview

- Location
- Source of water supply and yield
- Explanation of how project decreases existing demand or prevents a new demand on Metropolitan's imported water deliveries
- Participating agencies and contractual commitments
- Complete *Attachment A*

Additional information for groundwater projects:

- Basin hydrology and setting
- Existing groundwater production and projected increase as a result of project
- Imported water replenishment requirements
- Previously abandoned production and/or replenishment
- Basin adjudication or operating rules
- Ability to sustain project production during 3-year shortage conditions
- Compliance with sound basin management

2) Project Facilities

- Treatment process and quality objectives
- Storage features
- List and map distinguishing existing and proposed facilities, land acquisition, etc.
- Interties to existing LRP agreements
- Interties and points of connection to other non-project facilities
- Methodology to measure project yield (e.g. metering, basin adjudication or watermaster rules if applicable)
 - If project is a Direct/Indirect Potable Reuse project, the applicant must demonstrate that the project offsets a demand on Metropolitan's imported, potable water.

3) Project Costs

- Capital (including Design)
- Operation and Maintenance
- Field Labor
 - Eligible labor consists only of new employees that the applicant must hire to operate and maintain the project.
- Complete *Attachment B*

4) Benefits

- Regional and local water supply reliability benefits
- Peaking and seasonal variability
- Local water supply benefits
- Other benefits (environmental, water quality, energy, wastewater, avoided facilities and permits, etc.)

5) Environmental Documentation and Permitting

- California Environmental Quality Act documents
- Regulatory agency approvals and permits

6) User Identification*

- Existing recycled water user names, demand and type of use
- Proposed user names, demand projections and type of usage
- Location map of existing and proposed users
- Deliveries outside of service area or non-project users
- Mandatory use ordinances
- Commitment letters
- Growth expectations

* If there is no user, the applicant's explanation of how project decreases existing demand or prevents a new demand on Metropolitan's imported water deliveries will suffice.

7) Implementation Schedule and Financing

- Governing board approvals
- Status of design
- Design/construction process: Design-bid-build, design-build, progressive design-build-operate, etc.
- Construction and operation timelines and milestones
- Yield development (amount by year), type of use, and completion date for each phase
- Implementation obstacles/challenges
- Land acquisition
- Financing sources and terms
- Grants and third-party payments
- Schedule of permits

**ATTACHMENT A
LOCAL RESOURCES PROGRAM
PROJECT FACT SHEET**

1.	Project Name:	
2.	Project Location (City, County):	
3.	Project Owner (Applicant) Contact Information:	
4.	Metropolitan Member Agency:	
5.	Source of Project Water:	
6.	Type of Uses:	
7.	Estimated First Year of Operation:	
8.	Ultimate Annual Project Yield (AFY):	
9.	Other agencies / Entities participating in the project:	
	<u>Agency / Entity</u>	<u>Role</u>
	_____	_____
	_____	_____
10.	CEQA and Permitting	
a.	Status of CEQA Documentation:	
	<input type="checkbox"/> Exempt Declaration	<input type="checkbox"/> Negative
	<input type="checkbox"/> Mitigated Negative Declaration	<input type="checkbox"/> EIR/S
	Status:	
b.	Other permits:	
	Please list and include status:	
11.	Funding option selected:	

**ATTACHMENT B
PROJECT COST AND PRODUCTION INFORMATION**

Total Project Capital Cost:			
Grants and Contributions by others:			
Net Capital Cost:			
Net Capital Funding Measures			
Source of Funding	Amount (\$)	Interest Rate (%)	Term (years)

Assumed annual inflation rate for O&M cost projections: ____%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
No.	Fiscal Year End	Yield (AF)	Capital Expenditures (\$)	Amortized Capital Cost (\$)	Cost of Purchasing Water (\$)	O&M Cost (\$)	Total Project Cost (\$)
1							
2							
3							
4							
5							
.							
.							
24							
25							

- (1) July 1 to June 30
- (2) Projected annual production in AF, excluding existing use
- (3) Total Capital Expenditure in each year
- (4) Total annual capital debt service
- (5) Applicable only if the project sponsor will purchase reclaimed water from another agency to operate the projects, groundwater basin pumping tax, etc.
- (6) Projected annual Operations & Maintenance (O&M) cost, excludes item 5
- (7) Sum of (4) + (5) + (6)

ATTACHMENT C

LOCAL RESOURCES PROGRAM

INCENTIVE PAYMENT OPTIONS

Incentive Payment Structures

Agencies can choose from one of the following three alternative incentive payment structures for each of their eligible projects to participate in the LRP. LRP agreement term is for 25 years for each option.

Option 1 - Sliding Scale Incentives Over 25 Years

Metropolitan would provide Agency a sliding scale incentive up to \$340/AF over 25 years, calculated annually based on actual project unit costs exceeding Metropolitan's current full-service water rate as established by Metropolitan's Administrative Code § 4401, for project water used within Metropolitan service area. Eligible project costs include an agency's out of pocket costs normally associated with developing local resource projects including design, capital, operations, maintenance, and replacement costs. Incentive payments are subject to an annual cost reconciliation process with adjustments for under- or over-payment to be included in subsequent water service invoices from Metropolitan.

Option 2 - Sliding Scale Incentives Over 15 Years

This alternative is similar to Option 1, but the incentive amount is up to \$475/AF over 15 years. In addition to the general requirements and performance provisions, projects must continue production for 25 years, even if LRP payments are reduced to zero after 15 years. This provision ensures continued production throughout the contract term. If Agency fails to comply with these provisions, Metropolitan will require reimbursement for a percentage of the previous LRP payments toward that project. The calculations for reimbursement will be outlined in the LRP agreement

Option 3 – Fixed Incentive Over 25 Years

Compared to sliding scale incentives that are dependent on Metropolitan's full-service water rate, a fixed incentive rate provides agencies with a more stable source of funds to help address financing issues. Metropolitan would offer a project-specific fixed incentive rate up to \$305/AF over 25 years. The fixed incentive amount for each project would be negotiated so that Metropolitan's maximum obligation toward a project under this alternative would not exceed 90% of the estimated financial obligations under Option 1 for the same project. **Fixed incentives established under this option cannot be renegotiated in the future.** In addition to the general requirements and performance provisions, the following provision would apply to this alternative: Total LRP payments under the agreement term would be limited to total estimated project yield presented by Agency at the time of agreement negotiation.

ATTACHMENT C (cont.)

For all options, applicants must submit the following back-up documentation:

- Project cost
- Project financing (including interest rate and date when fund was secured)
- Applicant labor cost for operation and maintenance (# of employees, title, hourly rates / salary information)
 - i) Eligible labor is only new employees that the applicant needs to hire to operate and maintain the project
- Any other information that Metropolitan may request from Agency

Annual production assessment and cost reconciliation

Option 1 and Option 2: After the start of project operation and by December 31 of each year, Agency shall provide Metropolitan with the following reconciliation data for the previous Fiscal Year:

- a) Records of Recovered Water and Allowable Yield
- b) Supporting documentation of the actual cost of the project
- c) Records of water deliveries to end users
- d) Terms and schedule of payments of the project's financing instruments
- e) A description of any changes to the project's financing instruments
- f) All other contributions, such as grants

Option 3 does not require an annual production assessment and cost reconciliation. However, Agency will be required to submit the selected construction bid and identify all funding sources and submit supporting documentation of when funding source(s) was secured to determine the fixed incentive rate.

After the start of project operation, Agency will also be required to submit records of Recovered Water and Allowable Yield (Item a) by December 31 of each year so that Metropolitan can correct any differences between the reported yields and the actual yields.

If there is a difference between Agency's certification and final production records of at least 5 AF, Metropolitan will correct the payment in the applicable Member Agency's monthly water bills. Any differences less than 5 AF will not be corrected pursuant to Administrative Code § 4507(h)(6).

Record Keeping and Audit

Agency shall establish and maintain accounting records of all costs incurred for the construction, operations and maintenance, and replacement parts of the project. Metropolitan will have the right to audit project costs and other data relevant to the terms of the LRP agreement both during the agreement term or and for a period of three years following the termination of the LRP agreement.

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