AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE MEETING
WEDNESDAY, AUGUST 21, 2024

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=m3218fcab8504273ff876d8f7b41bd82d
Meeting Number (Access Code): 2480 513 0181
Meeting password: umNJx8abx23

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: Karen McLaughlin _____
Committee Member: John Withers _____

ALSO PRESENT

Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
Neveen Adly	_____	Paul Weghorst	_____	Steve Choi	_____
Jim Colston	_____	Jason Manning	_____	Jose Zepeda	_____
Rich Mori	_____	Eric Akiyoshi	_____	Malcolm Cortez	_____
Jacob Moeder	_____	Harry Cho	_____	Alex Murphy	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. Public comments are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 8:00 a.m. on Wednesday, August 21, 2024.

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.

INFORMATION

4. UPCOMING PROJECTS STATUS REPORT – AKIYOSHI / CORTEZ / MOEDER / BURTON

   Recommendation: Receive and file.

5. IRWD NON-POTABLE WATER STORGE ANNUAL MANAGEMENT PLANS FOR FISCAL YEAR 2024-25 – ZEPEDA / CHAMBERS

   Recommendation: Receive and file.

ACTION

6. PLANNING AREA 40 CYPRESS VILLAGE MARINE WAY CAPITAL DOMESTIC WATER IMPROVEMENTS – KUAN / RIOS / AKIYOSHI / BURTON

   Recommendation: That the Board authorize the General Manager to accept Irvine Community Development Company's construction contract with Shoffeitt Pipeline, Inc. in the amount of $795,843.25, and authorize a budget increase for Project 12510 in the amount of $693,000, from $507,000 to $1,200,000, for the Planning Area 40 Cypress Village Marine Way Capital Domestic Water Improvements.

7. PLANNING AREA 51 HERITAGE FIELDS MARINE WAY STAGE 3 CAPITAL FACILITIES – RIOS / AKIYOSHI / BURTON

   Recommendation: That the Board authorize the General Manager to accept Heritage Fields' construction contract with L&S Construction, Inc. in the amount of $2,031,738 for the Planning Area 51 Marine Way Stage 3 Capital Facilities Improvements Project; and authorize the addition of Projects 13107, 13109, and 13110 in the respective amounts of $710,000, $1,200,000 and $900,000 to the Fiscal Year 2024-25 Capital Budget for the Planning Area 51 Marine Way Stage 3 Capital Improvements Project.

ACTION, continued

8. FISCAL YEARS 2023-24 AND 2024-25 GENERAL REPLACEMENTS AND MODIFICATIONS PROJECTS BUDGET INCREASES – ROBINSON / AKIYOSHI / BURTON

   Recommendation: That the Board authorize budget increases to Fiscal Year 2023-24 for Project 11774 in the amount of $967,000, from $6,663,000 to $7,600,000, and for Project 11777 in the amount of $1,037,000, from $2,663,000, to $3,700,000; and authorize budget increases to Fiscal Year 2024-25 for Project 11850 in the amount of $3,517,000, from $6,283,000, to $9,800,000, Project 11851 in the amount of $3,597,000, from $2,103,000, to $5,700,000, and Project 11852 in the amount of $1,815,000, from $1,785,000, to $3,600,000.

9. SYPHON RESERVOIR IMPROVEMENTS VARIANCE AND FINAL ENVIRONMENTAL IMPACT REPORT ADDENDUM NO. 1 – MORI / UK / BURTON / WEGHORST

   Recommendation: That the Board authorize the General Manager to execute Variance No. 3 in the amount of $660,000 with AECOM for additional engineering design services for Project 03808, and approve the proposed Addendum No. 1 to the Syphon Reservoir Improvement Project Final Environmental Impact Report, including the determinations set forth in Addendum No. 1, approve the modifications to the project consisting of the off-site habitat as mitigation for the Syphon Reservoir Improvements Project and authorize staff to post and file a Notice of Determination.

10. ORANGE HEIGHTS ZONE 5 TO 6 AND ZONE C+ TO E BOOSTER PUMP STATIONS CONSULTANT SELECTION– BURK / MORI / BURTON

    Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Lee + Ro in the amount of $836,760 for engineering design services for the Orange Heights Zone 5 to 6 and Zone C+ to E Booster Pump Stations, Projects 07136 and 07139.

OTHER BUSINESS

11. Directors' Comments

12. Adjournment

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August 21, 2024
Prepared by: E. Akiyoshi / M. Cortez / J. Moeder / R. Mori
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

UPCOMING PROJECTS STATUS REPORT

SUMMARY:

A status report of Irvine Ranch Water District's Upcoming Projects is presented to the Committee for information.

BACKGROUND:

The information, which is provided as Exhibit "A", is a status report submitted quarterly to the Committee for review.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Upcoming Projects Status Report

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Exhibit "A"

UPCOMING PROJECTS STATUS REPORT

Project Name	Planning	Design	Construction	Construction Final Acceptance
Park Plaza RW Pipeline Replacement	Completed	Jul-24	Dec-24	-
HVAC System Replacement at Sand Canyon HQ and Operations Center	Completed	In-Process	Feb-25	-
Dyer Road Wellfield Facility Rehabilitation Group 1	Completed	In-Process	Apr-25	-
Operations Center Purchasing Warehouse	Completed	In-Process	Nov-24	Oct-25
Silverado Bridge 174 DW Improvements	Completed	Completed	Sep-24	Oct-25
Silverado Bridge 175 DW Improvements	Completed	In-Process	Feb-25	-
Silverado Bridge 177 DW Improvements	Completed	In-Process	Oct-24	-
MWRP Biosolids Lift Station and Sewer Improvement	Completed	In-Process	Apr-25	-
Radio Tower Improvements	Completed	In-Process	Dec-24	-
Technology Drive and Ada RW Pipeline Replacement	In-Process	Aug-24	Feb-24	-
Irvine Business Complex Appurtenance Relocations Phase 3	Completed	In-Process	Oct-24	-
Lake Forest Woods Sewer Improvements	Completed	In-Process	Oct-24	-
Santiago Canyon Pump Station Improvements	Completed	Completed	In-Process	Feb-25
Coastal Z2 and Z4 Pump Stations Rehabilitation	Completed	In-Process	Oct-24	-
Rehabilitation of Irvine Desalter Wells 76, 110, 115R and Destruction of Wells 72, 106	Completed	Completed	In-Process	May-25
Santiago Creek Dam Outlet Tower and Spillway Improvements	Completed	In-Process	May-26	-
Sand Canyon Dam Instrumentation	Completed	In-Process	Sep-24	-
Rattlesnake Dam Risk Reduction Investigation	Completed	In-Process	-	-
Santiago Canyon Fleming Zone 8 Tank and Zone 8-9 BPS	Completed	Completed	In-Process	Feb-25
Orange Heights Zone 6 Reservoir	Completed	In-Process	Mar-25	-
Generator Fuel Storage Upgrades	Completed	Completed	In-Process	Dec-25
MWRP MPS-2 Pump Bases Replacement	Completed	Completed	In-Process	Oct-24
UCI Meter Vault Replacement	Completed	In-Process	Aug-24	-
Lake Forest Zone B-C BPS	Completed	Completed	In-Process	Sep-24
Lake Forest Zone 4 Tank Rehabilitations	Completed	In-Process	Sep-25	-
San Joaquin Reservoir Filtration	Completed	Completed	In-Process	Mar-25
Sewer Siphon Improvements Phase II	Completed	Completed	Sep-24	Apr-26
Well OPA-1 PFAS Treatment	Completed	Completed	In-Process	Sep-24
Well ET-1 PFAS Treatment	Completed	Completed	In-Process	Sep-24
SGU PFAS Treatment	Completed	Completed	In-Process	Nov-24
Zone A to Rattlesnake Reservoir BPS	Completed	Completed	In-Process	Jan-25
Syphon Reservoir Intersection Improvements and Access Road	Completed	Completed	In-Process	Nov-24
Orange Heights SAC/Baker Pipeline Relocation	Completed	Completed	Nov-24	May-25
Orange Heights Zn 5 to 6 and C+ to E Pump Stations	Completed	Sep-24	Oct-25	-
Syphon Reservoir Improvements	Completed	In-Process	Jun-25	-
MWRP Compressed Natural Gas and Diesel/Gasoline Fueling Station	Completed	Completed	In-Process	Feb-25
MWRP Tertiary Filter Rehabilitation	Completed	Completed	In-Process	Nov-25
PA 1, Jeffrey Road Extension RW and DW (RA w/CDC)	Completed	Completed	Completed	Sep-24

UPCOMING PROJECTS STATUS REPORT

Project Name	Planning	Design	Construction	Construction Final Acceptance
PA 51, Serrano Creek Sewer Relocation	Completed	Completed	Completed	Sep-24
PA 51, District 5 South Chinon DW, RW (RA with Heritage Fields)	Completed	Completed	Sep-24	Nov-24
PA 51, Marine Way Stage 2 from Skyhawk to Treble DW, RW (RA with Heritage Fields)	Completed	Completed	Completed	Oct-24
PA 51 Marine Way Stage 3 from County to Lynx	Completed	Completed	Sep-24	Dec-24
PA 51 Marine Way Stage 4 from Lynx to OCTA Rail	Completed	In Process	Jan-25	May-25
PA 51, Treble from GP5 to Marine Way DW, RW (RA with Heritage Fields)	Completed	Completed	In-Process	Nov-24
PA 51 Lynx from Harrier to Marine Way DW, SS (RA with Heritage Fields)	Completed	Completed	Sep-24	Nov-24
PA 1, Orchard Hills Neighborhood 4 DW (RA with TIC)	Completed	Completed	In-Process	Sep-24
PA 1, Orchard Hills Neighborhood 4 RW (RA with TIC)	Completed	Completed	In-Process	Sep-24
East Orange, Orange Heights Tract 16199 SS, RW	Completed	In-Process	Oct-24	Jan-25
East Orange, Orange Heights Tract 17995 DW, RW	Completed	In-Process	Oct-24	Jan-25
East Orange, Orange Heights Jamboree and Chapman DW SS, RW	Completed	In-Process	Oct-24	Jan-25

August 21, 2024
Prepared by: J. Zepeda
Submitted by: W. Chambers
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

IRWD NON-POTABLE WATER STORAGE
ANNUAL MANAGEMENT PLANS FOR FISCAL YEAR 2024-25

SUMMARY:

IRWD utilizes its recycled water seasonal storage reservoirs to align recycled water supply rates that are relatively fixed with recycled water demands that vary seasonally. During the high-demand summer months, water is withdrawn from these reservoirs to supplement the recycled water system. Due to limited reservoir storage capacity, untreated imported water is purchased to supplement recycled water supplies when necessary. Conversely, when recycled storage volumes approach the targeted capacity, operational changes are made to curtail recycled water production and redirect flows to neighboring agencies or discharge treated effluent to the ocean.

IRWD's annual Reservoir Management Plan (RMP) guides the operation of seasonal storage reservoirs during the fiscal year. This annual RMP considers various factors such as forecasts of supply, demands, and rainfall amounts within the recycled water system, as well as any constraints or limitations within the system. The RMP specifically addresses the operational management of Recycled Water Seasonal Storage Reservoirs, Irvine Lake Reservoir, and other water supplies and outlets. During the Committee meeting, staff will provide an update on reservoir operations from the past fiscal year and discuss the assumptions and system limitations considered in preparing the RMP for Fiscal Year 2024-25.

BACKGROUND:

Recycled Water Seasonal Storage Reservoir Management Plan:

IRWD owns and operates four recycled water storage reservoirs: Rattlesnake, San Joaquin, Syphon, and Sand Canyon. These reservoirs have varying storage capacities and are summarized in the following table:

Recycled Water Seasonal Storage	Maximum (Design) Capacity	Effective Capacity	Comments
Rattlesnake Reservoir	1,442 AF	632 AF	Internal operating limit
San Joaquin Reservoir	3,049 AF	3,049 AF	
Syphon Reservoir	500 AF	0 AF	Currently out of service
Sand Canyon Reservoir	790 AF	150 AF	Remainder of capacity for stormwater runoff
Total:	*5,781 AF*	*3,831 AF*	

The RMP guides staff's efforts to manage water supplies and demands by monitoring reservoir levels and optimizing water sources relative to expected demands. Recycled water is primarily sourced from the Michelson Water Recycling Plant (MWRP), Los Alisos Water Recycling Plant (LAWRP), and groundwater from El Toro Groundwater Remediation wells (ET-1, ET-2, and 78). To supplement supply, IRWD purchases untreated imported water from the Metropolitan Water District. During low-demand winter months, reservoirs are filled to approximately 95% of usable capacity. Excess recycled water is either discharged to the ocean or directed to the Green Acres Project (GAP) for beneficial use by Orange County Sanitation District (OC San) or the Orange County Water District Ground Water Replenishment System (OCWD). In exceptionally wet winters, sewage normally treated at the MWRP may also be diverted to OC San. As water demand peaks in summer, stored recycled water becomes the primary supply, reducing reliance on purchased imported water. As actual conditions deviate from the RMP's assumptions over the course of the year, staff will adapt operations accordingly.

Review of Recycled Water Storage for Fiscal Year 2023-24:

Fiscal Year 2023-24 recycled water demand was significantly lower than projected. Based on previous year averages, demand was estimated at 30,854 acre-feet (AF). Due to another unusually wet winter (approximately 18.7 inches of rainfall), actual demand was only 25,092 AF – a difference of 5,762 AF. To effectively manage the surplus recycled water, IRWD implemented all available operational strategies to ensure proper collection, treatment, recycling, or safe disposal of wastewater in a cost-effective manner.

The following table summarizes operational actions taken to manage recycled water storage, production, and distribution during Fiscal Year 2023-24:

	Operational Action Taken, in approximate chronological order	**Flows Not Sent to Storage**
1.	Non-potable water Well ET-2 was taken offline in September 2023, and again in January 2024 with ET-2. ET-1 was offline for installation of PFAS treatment	635 AF
2.	LAWRP recycled water production off for approximately ten months; secondary effluent discharged to the South Orange County Wastewater Authority (SOCWA) ocean outfall	3,119 AF
3.	MWRP Zone B recycled water discharged to the SOCWA ocean outfall	866 AF
4.	Recycled water sent to the GAP system; most of this water was utilized by Orange County Water District in the Ground Water Replenishment System	3,617 AF
5.	Sewage diverted to OC San through the Main Street diversion structure. Flow bypassed from the Harvard Avenue Trunk Sewer and San Mateo diversion structures.	1,935 AF
	Total Amount of Available Flow Not Sent to Storage:	*10,172 AF*

Recycled Water Storage Management Plan for Fiscal Year 2024-25:

The recycled water storage RMP for Fiscal Year 2024-25, provided as Exhibit "A", includes the following assumptions:

- Recycled system water annual demands of 30,378 AF;
- Annual supply to the non-potable system of 33,437 AF (includes 3,266 AF of native water);
- Capture of 280 AF of rainfall;
- Divert 909 AF of recycled water to the Green Acres Project (GAP) and / or the OC San outfall;
- Direct 1,519 AF of LAWRP secondary effluent to the SOCWA outfall;
- Produce 3,358 AF from Wells ET-1, ET-2, and 78. They will be operated for 10 months of the year (Well ET-1 will restart in September 2024 once the PFAS treatment facility is commissioned); and
- Achieve a combined Effective Capacity for all reservoirs of 95% of total available storage (approximately 3,600 AF) by April 31, 2024.

Irvine Lake Reservoir Management Plan for Fiscal Year 2024-25:

Irvine Lake's capacity is approximately 25,000 AF, owned 75% by IRWD and 25% by the Serrano Water District. IRWD operates Irvine Lake (sometimes referred to as the Santiago Reservoir) primarily as a water storage facility. IRWD utilizes its water stored in Irvine Lake primarily as a source of supply the Baker Water Treatment Plant; this water can also be supplied to the IRWD non-potable system, as needed.

The RMP prepared for Irvine Lake, provided as Exhibit "B", anticipates utilization of 4,063 AF of native water that had been allocated to IRWD on April 20, 2024. The reservoir will be operated in accordance with guidelines in the Santiago Reservoir Interim Lake Level Operation Plan that was implemented in March 2020 to reduce the probability of discharging a significant flow over the spillway. The Irvine Lake Reservoir Management Plan was developed with the following assumptions:

- Beginning storage of 13,949 AF as of July 1, 2024;
- Demands of 12,098 AF based on a two-year average, including 6,636 AF of supply for the year to the Baker Water Treatment Plant and 2,101 AF of Serrano's water to the Howiler Plant; and
- Annual rainfall capture of 5,540 AF into Irvine Lake.

If the 5,540 AF of runoff is not captured, imported untreated water may be purchased at a rate of $903 per AF to meet demands.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act (CEQA), Code of Regulations, Title 14, Chapter 3, Section 15378.

RECOMMENDATION:

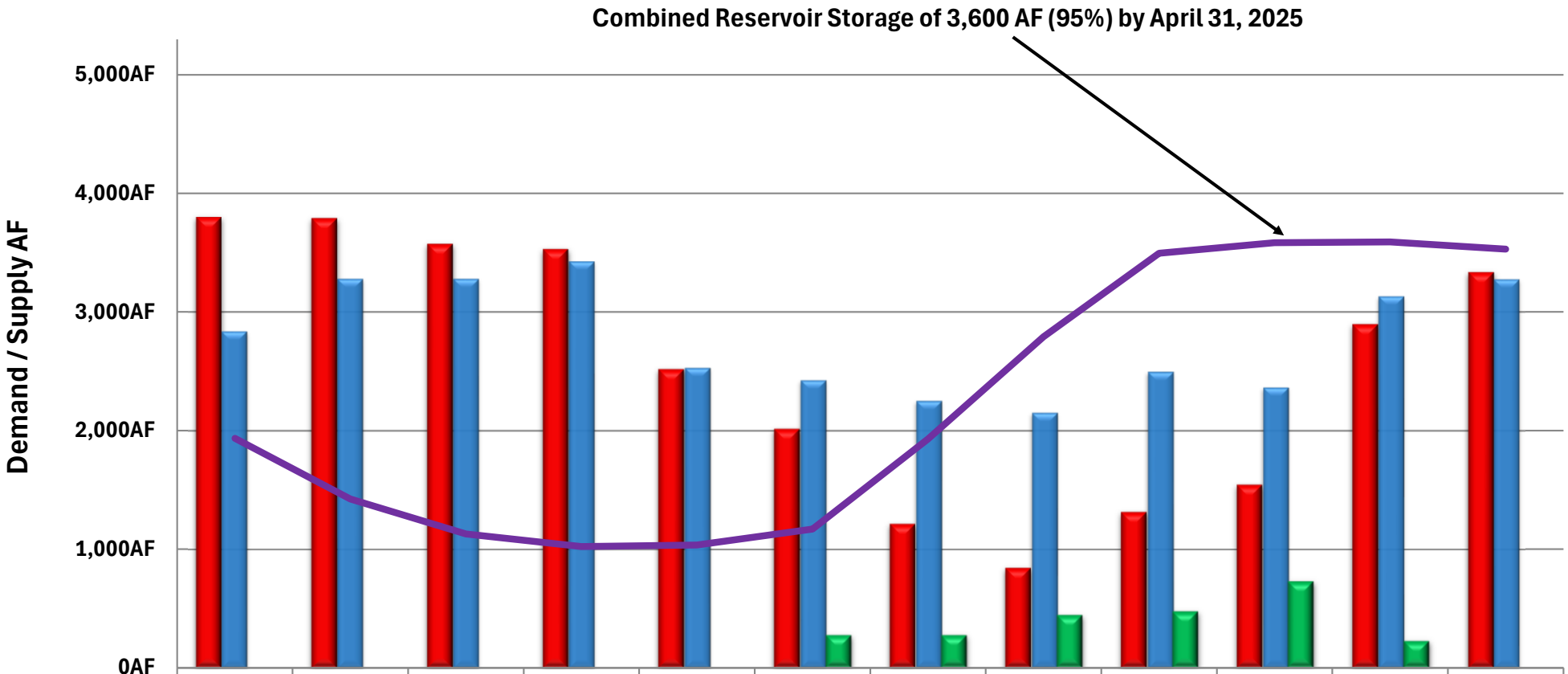
Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Recycled Reservoir Management Plan FY 2024-25
Exhibit "B" – Irvine Lake Reservoir Management FY 2024-25

Exhibit "A"

Recycled Reservoir Management Plan FY 2024-2025
San Joaquin, Sand Canyon, and Rattlesnake



	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25
Demand*	3,801AF	3,790AF	3,574AF	3,530AF	2,517AF	2,015AF	1,215AF	844AF	1,315AF	1,545AF	2,897AF	3,335AF
Supply	2,837AF	3,278AF	3,279AF	3,425AF	2,529AF	2,425AF	2,250AF	2,151AF	2,495AF	2,364AF	3,130AF	3,273AF
GAP	0AF	0AF	0AF	0AF	0AF	276AF	276AF	445AF	475AF	730AF	225AF	0AF
Total Storage	1,934AF	1,422AF	1,127AF	1,022AF	1,034AF	1,168AF	1,928AF	2,790AF	3,495AF	3,584AF	3,592AF	3,530AF

*Demand Projections Based on a 2 Year Average

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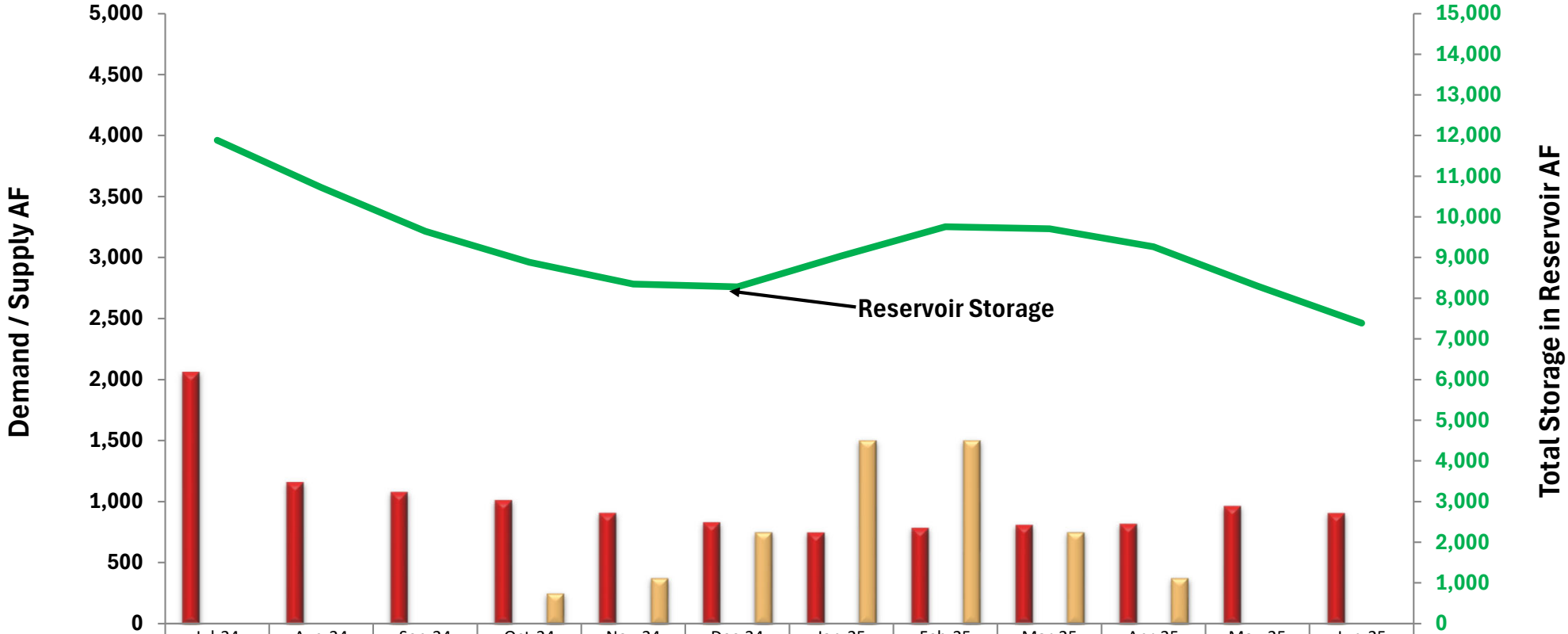
Exhibit "B"

Irvine Lake Reservoir Management Plan FY 2024/25



	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25
Demand*	2,062AF	1,161AF	1,079AF	1,013AF	910AF	832AF	749AF	787AF	812AF	820AF	966AF	907AF
OC-13 IRWD	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF
OC-13 SWD	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF	0AF
Rainfall Runoff	0AF	0AF	0AF	250AF	375AF	750AF	1,500AF	1,500AF	750AF	375AF	0AF	0AF
Lake Storage	11,887AF	10,727AF	9,647AF	8,884AF	8,349AF	8,277AF	9,038AF	9,761AF	9,709AF	9,263AF	8,298AF	7,391AF

*Demand and Rainfall Projections Based on a 2 Year Average and includes evaporation loss

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August 21, 2024
Prepared by: A. Kuan/B. Rios/E. Akiyoshi
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

PLANNING AREA 40 CYPRESS VILLAGE
MARINE WAY CAPITAL DOMESTIC WATER IMPROVEMENTS

SUMMARY:

Irvine Community Development Company, LLC (ICDC) is proceeding with development of Planning Area (PA) 40 Cypress Village, which includes the construction of domestic water, sanitary sewer, and recycled water improvements. As part of the development, ICDC will construct IRWD capital domestic water facilities under an existing Supplemental Reimbursement Agreement. Staff recommends that the Board:

- Authorize the General Manager to accept ICDC's construction contract with Shoffeitt Pipeline, Inc. in the amount of $795,843.25 for the PA 40 Cypress Village Marine Way Capital Domestic Water Improvements, and
- Authorize a budget increase for Project 12510 in the amount of $693,000, from $507,000 to $1,200,000, for the PA 40 Cypress Village Marine Way Capital Domestic Water Improvements.

BACKGROUND:

ICDC is moving forward with the development of PA 40 Cypress Village. As part of the development, ICDC will design and construct IRWD's capital domestic water facilities located within Marine Way between Sand Canyon Avenue and Ridge Valley. The installation of utilities within Marine Way will allow for the commercial development of several parcels located within the triangular area between Interstate 5 (I-5) Freeway, California State Route 133 (SR 133) and the elevated SR 133 Toll Road Ramp Connectors to the I-5 Freeway as shown in Exhibit "A". The required IRWD capital facilities are documented in the Planning Area 40 – Marine Way Sites Study Area Addendum dated October 31, 2022, prepared by Stantec Consulting Services, Inc., and all subsequent updates.

The design and construction of the IRWD capital facilities will be performed under the terms of the Master Reimbursement Agreement between IRWD and ICDC approved by the Board in May 1997 and as further refined in a Supplemental Reimbursement Agreement dated January 2012.

Marine Way Capital Domestic Water Improvements:

The PA 40 Cypress Village Marine Way Capital Domestic Water Improvements consists of approximately 2,000 feet of 12-inch domestic water pipeline. ICDC retained Stantec Consulting Services, Inc. to prepare the plans and received bids from four contractors ranging from $795,843.25 to $1,277,866.44. ICDC recommends awarding the construction contract to the low bidder, Shoffeitt Pipeline, Inc. for a bid amount of $795,843.25 as shown in Exhibit "B".

In addition, ICDC has received consultant proposals for engineering design, surveying, geotechnical observation and testing, construction support services, and field archeological / paleontological monitoring. Staff has reviewed the consultant proposals and the construction bids and found the amounts to be acceptable. A cost summary for the PA 40 Cypress Village Marine Way Capital Domestic Water Improvements is shown below.

Construction (Shoffeitt Pipeline, Inc.)	$795,843.25
Engineering Design (Stantec Consulting, Inc.)	$49,399.52
Construction Support (Stantec Consulting, Inc.)	$8,800.00
Survey Services (Stantec Consulting, Inc.)	$4,320.00
Geotechnical Services (GMU Geotechnical, Inc.)	$19,129.00
Archeological/Paleontological (LSA Associates, Inc.)	$7,730.00
ICDC Administration Fee (1%)	$7,958.43
	$893,180.20

FISCAL IMPACTS:

Project 12510 is included in the Fiscal Year 2024-25 Capital Budget and requires a budget increase as follows:

Project No.	Current Budget	Addition <Reduction>	Total Budget
12510	$507,000	$693,000	$1,200,000

ENVIRONMENTAL COMPLIANCE:

Construction of capital domestic water facilities for Cypress Village is subject to California Environmental Quality Act (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 August 12, 2008 (SCH# 2000071014).

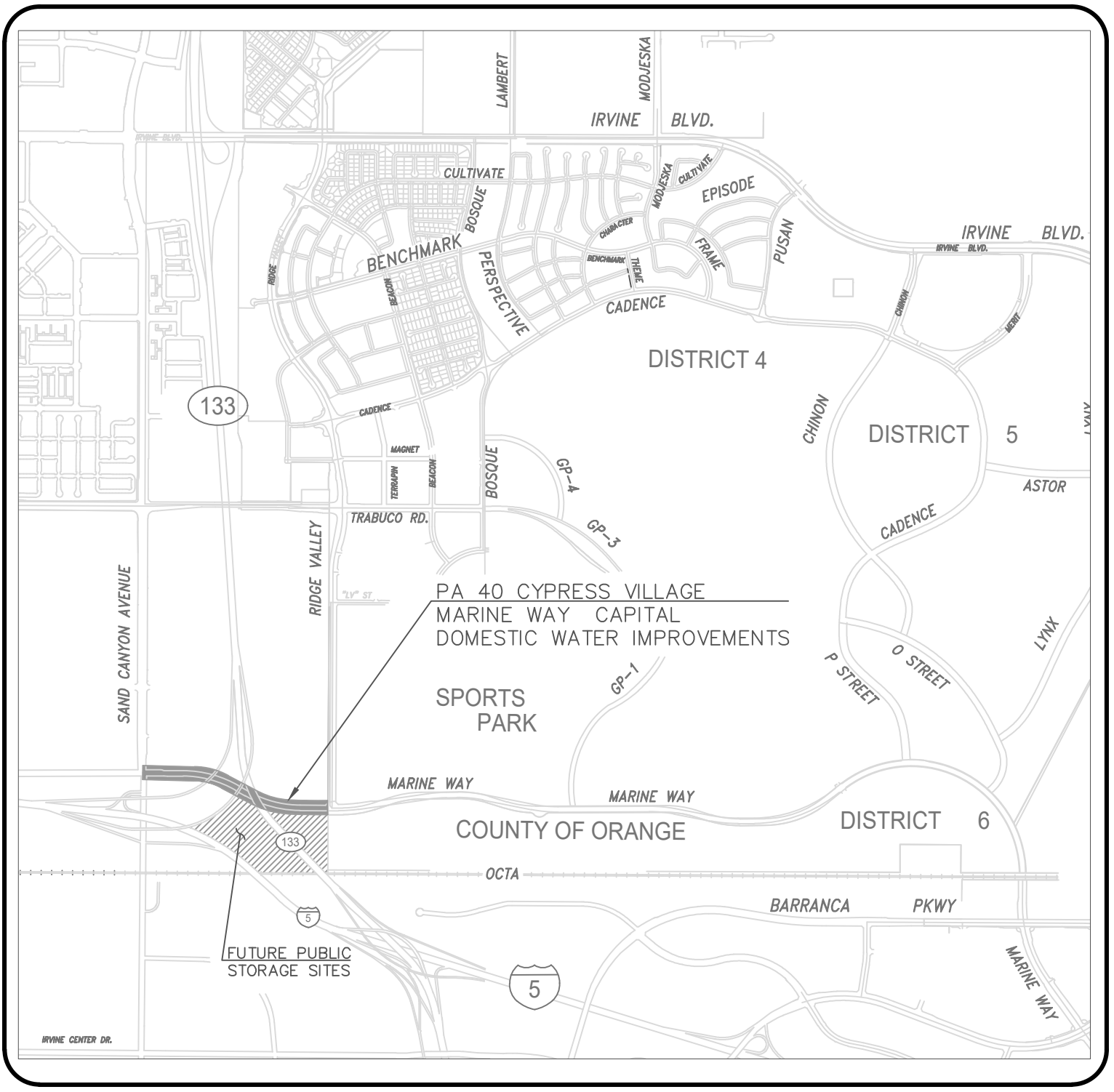
RECOMMENDATION:

That the Board authorize the General Manager to accept Irvine Community Development Company's construction contract with Shoffeitt Pipeline, Inc. in the amount of $795,843.25, and authorize a budget increase for Project 12510 in the amount of $693,000, from $507,000 to $1,200,000, for the Planning Area 40 Cypress Village Marine Way Capital Domestic Water Improvements.

LIST OF EXHIBITS:

Exhibit A – Location Map
Exhibit B – Bid Summary, PA 40 Cypress Village Marine Way Capital Domestic Water Improvements

Exhibit "A"



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NOT TO SCALE

EXHIBIT "A"
LOCATION MAP

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Exhibit "B"

BID SUMMARY
PLANNING AREA 40
6720 MARINE WAY SELF STORAGE
IRWD AND SCE PUBLIC UTILITY INFRASTRUCTURE IMPROVEMENTS
CONTRACT "B1" - WET UTILITIES (PREVAILING WAGE)
TASK/PC ID: LD-5085.ST.01.cn01
BID PACKAGE NO. B00554

c: _____Mike Morse
_____Bill Martin
_____N/A
_____File with Bid Key Map
_____Erica Marioneaux - Cost Matrix

PRE-BID MEETING DATE: April 17, 2024
BID OPENING DATE: May 22, 2024
WITNESSED BY: J. Favela
E. Marioneaux

DECLINED PRIOR TO PRE-BID: N/A
NO SHOW AT PREBID: NA
DID NOT SUBMIT: NA

			ENGINEER'S ESTIMATE **Stantec**		LOW BIDDER **Shoiffeitt**		2ND BIDDER **L&S Construction**		3RD BIDDER **Fydaq**		4TH BIDDER **Paulus**	
II.	**IRWD CAPITAL DELETABLE IMPROVEMENTS** (Developer may or may not award the Deletable Section)											
G.	**GENERAL**											
32.	MOBILIZATION (NOT TO EXCEED 2% OF CONTRACT PRICE SECTIONS F-G)	1 LS	$10,000.00	$10,000.00	$5,500.00	$5,500.00	$8,000.00	$8,000.00	$2,500.00	$2,500.00	$17,858.11	$17,858.11
33.	DEVELOP CONSTRUCTION WATER (SECTIONS F-G)	1 LS	$10,000.00	$10,000.00	$2,500.00	$2,500.00	$4,000.00	$4,000.00	$5,000.00	$5,000.00	$5,952.70	$5,952.70
34.	PAYMENT AND PERFORMANCE BONDS (SECTIONS F-G)	1 LS	$10,000.00	$10,000.00	$15,700.00	$15,700.00	$16,000.00	$16,000.00	$8,482.00	$8,482.00	$4,500.00	$4,500.00
35.	TRAFFIC CONTROL (SECTIONS F-G)	1 LS	$20,000.00	$20,000.00	$4,500.00	$4,500.00	$26,500.00	$26,500.00	$126,518.00	$126,518.00	$108,671.51	$108,671.51
36.	INTERIM EROSION AND SEDIMENT CONTROL (SECTIONS F-G)	1 LS	$5,000.00	$5,000.00	$1,500.00	$1,500.00	$7,500.00	$7,500.00	$1,500.00	$1,500.00	$5,952.70	$5,952.70
H.	**DOMESTIC WATER IMPROVEMENTS - IRWD CAPITAL**											
37.	CONSTRUCT 12" PVC C900 DR14 DOMESTIC WATER MAIN WITH BEDDING AND BACKFILL PER IRWD STD W-17	1,999 LF	$300.00	$599,700.00	$292.75	$585,207.25	$310.00	$619,690.00	$248.00	$495,752.00	$409.53	$818,650.47
38.	CONSTRUCT 8" PVC C900 DR14 DOMESTIC WATER MAIN WITH BEDDING AND BACKFILL PER IRWD STD W-17	124 LF	$200.00	$24,800.00	$229.00	$28,396.00	$270.00	$33,480.00	$612.00	$75,888.00	$386.73	$47,954.52
39.	CONSTRUCT 6" PVC C900 DR14 DOMESTIC WATER MAIN WITH BEDDING AND BACKFILL PER IRWD STD W-17	23 LF	$300.00	$6,900.00	$225.00	$5,175.00	$295.00	$6,785.00	$1,044.00	$24,012.00	$452.60	$10,409.80
40.	INSTALL 12" BUTTERFLY VALVE CL250 (FExFE) PER IRWD STD W-17	3 EA	$5,000.00	$15,000.00	$5,100.00	$15,300.00	$7,650.00	$22,950.00	$5,540.00	$16,620.00	$7,747.60	$23,242.80
41.	INSTALL 12" RESILIENT WEDGE GATE VALVE (FExFE) PER IRWD STD. W-22	1 EA	$5,000.00	$5,000.00	$4,500.00	$4,500.00	$6,000.00	$6,000.00	$6,288.00	$6,288.00	$6,163.33	$6,163.33
42.	INSTALL 8" GATE VALVE CL150 (FExPO) PER IRWD STD W-22	3 EA	$2,500.00	$7,500.00	$2,800.00	$8,400.00	$3,200.00	$9,600.00	$3,515.00	$10,545.00	$4,922.35	$14,767.05
43.	INSTALL 6" GATE VALVE CL150 (FExPO) PER IRWD STD W-22	1 EA	$2,500.00	$2,500.00	$1,990.00	$1,990.00	$2,200.00	$2,200.00	$2,590.00	$2,590.00	$4,001.79	$4,001.79
44.	INSTALL 12" FExPO ADAPTER	11 EA	$750.00	$8,250.00	$525.00	$5,775.00	$1,000.00	$11,000.00	$1,061.00	$11,671.00	$1,268.46	$13,953.06
45.	INSTALL 2" COPPER SERVICE TYPE "K" AND METER BOX FOR A FUTURE 2" METER PER IRWD STD W-2; METER TO BE INSTALLED PER SEPARATE PLAN IN THE FUTURE	2 EA	$4,500.00	$9,000.00	$6,900.00	$13,800.00	$11,200.00	$22,400.00	$19,949.00	$39,898.00	$11,194.78	$22,389.56
46.	INSTALL 6" DOMESTIC WATER TEMPORARY FLUSH-OUT PER W-12 FOR FUTURE FH ASSEMBLY AND DETAIL C ON SHEET 3	1 EA	$4,000.00	$4,000.00	$2,500.00	$2,500.00	$3,700.00	$3,700.00	$3,127.00	$3,127.00	$13,489.73	$13,489.73
47.	INSTALL DOMESTIC WATER TEMPORARY FLUSH-OUT PER W-12 FOR FUTURE 8" DDC INSTALLATION	2 EA	$4,000.00	$8,000.00	$2,850.00	$5,700.00	$3,800.00	$7,600.00	$3,127.00	$6,254.00	$13,489.73	$26,979.46
48.	REMOVE EXISTING DW FLUSH-OUT AND JOIN EXISTING 12" DW PVC	1 EA	$1,000.00	$1,000.00	$4,500.00	$4,500.00	$4,600.00	$4,600.00	$6,665.00	$6,665.00	$20,005.64	$20,005.64
49.	JOIN EXISTING PIPE AND INSTALL WELD-ON TAPPING SLEEVE PER DETAIL ON SHEET 4	1 EA	$25,000.00	$25,000.00	$6,900.00	$6,900.00	$25,000.00	$25,000.00	$102,918.00	$102,918.00	$38,716.90	$38,716.90
50.	INSTALL 8" DOMESTIC WATER TEMPORARY FLUSH-OUT PER W-12 FOR FUTURE FH ASSEMBLY AND DETAIL B ON SHEET 3	1 EA	$4,000.00	$4,000.00	$2,850.00	$2,850.00	$3,800.00	$3,800.00	$3,127.00	$3,127.00	$13,489.73	$13,489.73
I.	**TRENCH REPAIR**											
51.	CONSTRUCT ASPHALT TRENCH REPAIR PER COI STD. 223, ALTERNATIVE "B"	1 LS	$100,000.00	$100,000.00	$75,150.00	$75,150.00	$172,000.00	$172,000.00	$280,213.00	$280,213.00	$60,717.58	$60,717.58
	TOTAL IRWD DELETABLE BID PRICE			**$875,650.00**		**$795,843.25**		**$1,012,805.00**		**$1,229,568.00**		**$1,277,866.44**

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August 21, 2024
Prepared by: B. Rios / E. Akiyoshi
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

PLANNING AREA 51 HERITAGE FIELDS MARINE WAY STAGE 3
CAPITAL FACILITIES

SUMMARY:

Heritage Fields, LLC is proceeding with development of Planning Area 51 (Great Park), which includes the construction of streets, storm drains, domestic water, sanitary sewer, and recycled water improvements. As part of the development, Heritage Fields will construct IRWD capital facilities under an existing Supplemental Reimbursement Agreement (SRA). Staff recommends that the Board:

- Authorize the General Manager to accept Heritage Fields' construction contract with L&S Construction, Inc. in the amount of $2,031,738 for the Planning Area 51 Marine Way Stage 3 Capital Facilities Improvements Project;
- Authorize the addition of Planning Area 51 Marine Way Stage 3 Domestic Water Capital Facilities Project 13107 in the amount of $710,000 to the Fiscal Year (FY) 2024-25 Capital Budget;
- Authorize the addition of Planning Area 51 Marine Way Stage 3 Sanitary Sewer Capital Facilities Project 13109 in the amount of $1,200,000 to the FY 2024-25 Capital Budget; and
- Authorize the addition of Planning Area 51 Marine Way Stage 3 Recycled Water Capital Facilities Project 13110 in the amount of $900,000 to the FY 2024-25 Capital Budget.

BACKGROUND:

Heritage Fields is moving forward with the Planning Area 51 Marine Way Stage 3 construction. As shown in Exhibit "A", Marine Way Stage 3 will construct street improvements and IRWD capital domestic water, sanitary sewer and recycled water facilities from just east of the County Property line to the intersection with future street Lynx. The required IRWD capital facilities are documented in the September 2016 Planning Area 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 by Heritage Fields, LLC under the terms of the Master Reimbursement Agreement approved by the Board in August 2012 and as further refined in the SRA dated November 25, 2019.

Marine Way Stage 3 Capital Improvements:

The Marine Way Stage 3 Capital Improvements consist of installing approximately 2,800 feet of 12-inch diameter domestic water pipeline, 1,400 feet of 18-inch sanitary sewer pipeline, 2,600 feet of recycled water pipeline and all required appurtenances. Heritage Fields retained

Proactive Engineering to prepare the design plans and received bids from three contractors. Heritage Fields recommends awarding the construction contract to the lowest bidder, L&S Construction Inc., for a bid amount of $2,031,738 as shown in Exhibit "B". In addition, Heritage Fields has received consultant proposals for geotechnical observation and testing, surveying, construction support services, and field archeological and paleontological monitoring. Staff has reviewed the consultant proposals and the construction bids and find the amounts to be acceptable. A summary of the Marine Way Stage 3 Capital Improvements costs are shown below:

Design (Proactive)	$44,800.00
Construction (L&S)	$2,031,738.00
Geotechnical Services (Engeo)	$35,100.00
Surveying / Field Coordination (Hunsaker)	$65,800.00
Construction Engineering (Proactive)	$11,440.00
Archeo / Paleo Monitoring	$12,925.00
Heritage Fields Administration Fee (1%)	$20,317.38
	$2,222,120.38

FISCAL IMPACTS:

Staff requests the addition of Projects 13107, 13109 and 13110 to the FY 2024-25 Capital Budget as follows. All projects will be funded 100% by ID's 1112 and 2212.

Project No.	Current Budget	Addition <Reduction>	Total Budget
13107	$0	$ 710,000	$ 710,000
13109	$0	$1,200,000	$1,200,000
13110	$0	$ 900,000	$ 900,000
	$0	$2,810,000	$2,810,000

ENVIRONMENTAL COMPLIANCE:

Construction of capital sanitary sewer facilities for the Great Park 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 December 12, 2023 (SCH# 2002101020).

RECOMMENDATION:

That the Board authorize the General Manager to accept Heritage Fields' construction contract with L&S Construction, Inc. in the amount of $2,031,738 for the Planning Area 51 Marine Way Stage 3 Capital Facilities Improvements Project; and authorize the addition of Projects 13107, 13109, and 13110 in the respective amounts of $710,000, $1,200,000 and $900,000 to the Fiscal Year 2024-25 Capital Budget for the Planning Area 51 Marine Way Stage 3 Capital Improvements Project.

LIST OF EXHIBITS:

Exhibit "A" – Location Map
Exhibit "B" – Bid Summary, Marine Way Stage 3 Capital Improvements

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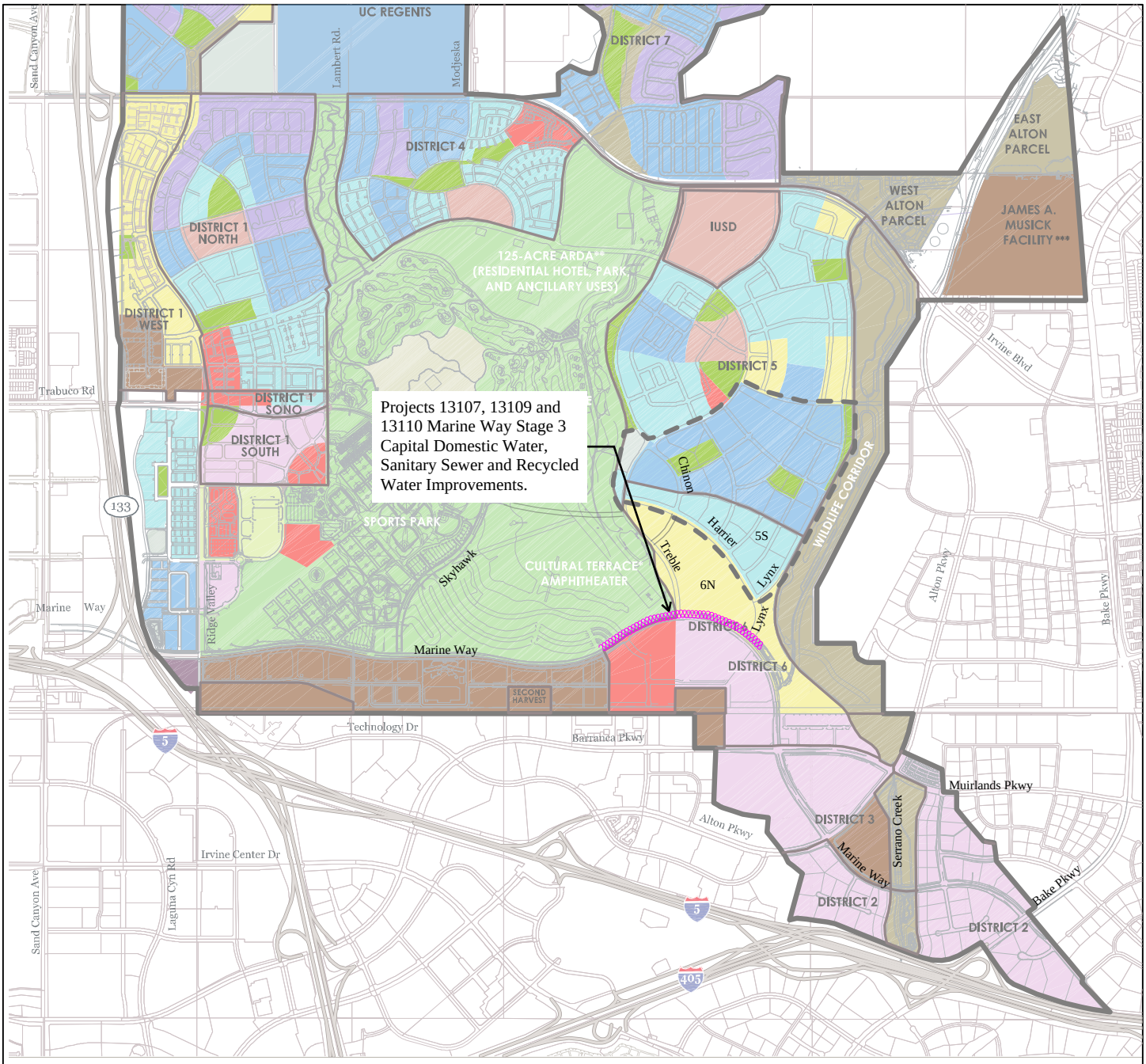
Exhibit "A"



LOCATION MAP

not to scale

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PROJECT: Marine Way Stage 3 Wet Utility Improvements
IRWD Code 8166 Sewer, Water and Recycled Water

FILE NO.: xxxx
DATE: 3/29/2024

OWNER: Heritage Fields El Toro, LLC

BID SPREAD CODE 8166

	ENGINEER'S ESTIMATE	L&S - LOW	LEATHERWOOD	FYDAQ
CAPITAL - MARINE WAY STAGE 3				
Capital - Marine Way Stage 3 (Code 8166)				
A Capital - Marine Way Stage 3 (Code 8166)				
A.1 SUB-TOTAL, SUBSECTION A.1 - General Items	$ 55,100.00	$ 51,620.00	$ 73,950.00	$ 21,332.40
A.2 SUB-TOTAL, SUBSECTION A.2 - MWS3 Sewer - Capital Code 8166	$ 915,495.00	$ 888,290.00	$ 909,110.00	$ 946,055.00
A.4 SUB-TOTAL, SUBSECTION A.4 - MWS3 Domestic Water - Capital Code 8166	$ 493,660.00	$ 482,974.00	$ 520,325.00	$ 545,033.00
A.6 SUB-TOTAL, SUBSECTION A.6 - MWS3 Recycled Water - Capital Code 8166	$ 618,120.00	$ 608,854.00	$ 591,310.00	$ 632,207.00
A.8 SUB-TOTAL, SUBSECTION A.8 - Additional Capital Construction Items on Plans not Identified in the Bid CPS (List Items)	$ -	$ -	$ -	$ -
TOTAL CAPITAL CONTRACT PRICE SCHEDULE	**$ 2,082,375.00**	**$ 2,031,738.00**	**$ 2,094,695.00**	**$ 2,144,627.40**

CAPITAL IMPROVEMENTS - Marine Way Stage 3

NO.	CODE	General Items	QTY	UNIT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
					Code 7902		Code 7902		Code 7902		Code 7902	
001	130-01	Mobilization, (Not to Exceed 2% of Section A)	1	LS	$ 23,200.00	$ 23,200.00	$ 20,300.00	$ 20,300.00	$ 40,600.00	$ 40,600.00	$ 4,350.00	$ 4,350.00
002	130-01	Develop Construction Water Supply & Storage	1	LS	$ 5,800.00	$ 5,800.00	$ 5,800.00	$ 5,800.00	$ 5,800.00	$ 5,800.00	$ 870.00	$ 870.00
003	130-01	Performance, Labor and Payment Bond	1	LS	$ 20,300.00	$ 20,300.00	$ 19,720.00	$ 19,720.00	$ 23,200.00	$ 23,200.00	$ 14,372.40	$ 14,372.40
004	130-01	Erosion Control - SWPPP & BMP's	1	LS	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 870.00	$ 870.00
005	130-01	Traffic Control	1	LS	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 2,900.00	$ 1,450.00	$ 1,450.00	$ 870.00	$ 870.00
A.1		**SUB-TOTAL, SUBSECTION A.1 - General Items**				**$ 55,100.00**		**$ 51,620.00**		**$ 73,950.00**		**$ 21,332.40**
NO.	**CODE**	**MWS3 Sewer - Capital Code 8166**	**QUAN**	**UNIT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**
006	130-05	Furnish and install 18" PVC Green C900 (DR18) sewer main including sewer indicator tape per IRWD std. dwg. S-6 and specifications, bedding, backfill, pressure test , complete.	1,004	LF	$ 480.00	$ 481,920.00	$ 470.00	$ 471,880.00	$ 475.00	$ 476,900.00	$ 450.00	$ 451,800.00
007	130-02	Manage sewer pre-trench excavation material for deep sewer, complete	1	LS	$ 75,000.00	$ 75,000.00	$ 75,000.00	$ 75,000.00	$ 50,000.00	$ 50,000.00	$ 80,000.00	$ 80,000.00
008	130-05	Furnish and install 16" PVC Green C900 (DR18) sewer main including sewer indicator tape per IRWD std. dwg. S-6 and specifications, bedding, backfill, pressure test , complete.	355	LF	$ 275.00	$ 97,625.00	$ 260.00	$ 92,300.00	$ 355.00	$ 126,025.00	$ 435.00	$ 154,425.00
009	130-05	Furnish and install 15" PVC Green (SDR35) sewer main including sewer indicator tape per IRWD std. dwg. S-6 and specifications, bedding, backfill, pressure test , complete.	91	LF	$ 200.00	$ 18,200.00	$ 190.00	$ 17,290.00	$ 285.00	$ 25,935.00	$ 250.00	$ 22,750.00
010	130-06	Furnish and install 6" PVC SDR 35 sewer lateral including sewer indicator tape per IRWD std. dwg. S-6 and specifications, bedding, backfill, pressure test , frame and cover, concrete pad, fittings, complete.	30	LF	$ 250.00	$ 7,500.00	$ 230.00	$ 6,900.00	$ 155.00	$ 4,650.00	$ 125.00	$ 3,750.00
011	130-10	Construct 60" diameter manhole per IRWD std. dwg. S-1 with 30" diameter manhole frame and cover, complete.	1	EA	$ 18,000.00	$ 18,000.00	$ 18,000.00	$ 18,000.00	$ 16,000.00	$ 16,000.00	$ 19,000.00	$ 19,000.00
012	130-10	Construct 72" diameter manhole per IRWD std. dwg. S-1 with 36" diameter manhole frame and cover, complete.	3	EA	$ 35,000.00	$ 105,000.00	$ 34,000.00	$ 102,000.00	$ 31,000.00	$ 93,000.00	$ 29,900.00	$ 89,700.00
013	130-20	Furnish and Install temporary terminal cleanout per IRWD std. dwg. S-5 and specifications, complete	2	EA	$ 2,500.00	$ 5,000.00	$ 2,500.00	$ 5,000.00	$ 2,000.00	$ 4,000.00	$ 2,500.00	$ 5,000.00
014	130-05	Furnish and Install 30" steel casing per IRWD std. dwg. S-7 and specifications with minimum wall thickness of 0.50 inches, complete	60	LF	$ 500.00	$ 30,000.00	$ 490.00	$ 29,400.00	$ 310.00	$ 18,600.00	$ 500.00	$ 30,000.00
015	130-05	Furnish and install casing test station per IRWD std. dwg. CP-3 and specifications including wires, anode, and pull box, complete	2	EA	$ 3,000.00	$ 6,000.00	$ 3,000.00	$ 6,000.00	$ 2,300.00	$ 4,600.00	$ 7,500.00	$ 15,000.00
016	130-05	Join Existing sewer per IRWD specifications, complete	2	EA	$ 10,000.00	$ 20,000.00	$ 9,000.00	$ 18,000.00	$ 10,000.00	$ 20,000.00	$ 2,500.00	$ 5,000.00
017	130-05	Furnish and install cap and plug for 18" PVC sewer, complete	1	EA	$ 2,500.00	$ 2,500.00	$ 2,000.00	$ 2,000.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
018	130-02	Remove and dispose of existing temporary cleanout, complete	1	EA	$ 7,500.00	$ 7,500.00	$ 7,500.00	$ 7,500.00	$ 500.00	$ 500.00	$ 3,500.00	$ 3,500.00
019	130-02	Remove and dispose of existing brick and mortar plug off site, furnish and install brick and mortar plug, and fill existing channel with concrete per details per plan, complete	1	EA	$ 2,500.00	$ 2,500.00	$ 2,000.00	$ 2,000.00	$ 500.00	$ 500.00	$ 3,500.00	$ 3,500.00
020	130-02	Remove and dispose of existing 72" sewer manhole off site, including base, shaft and frame and cover, backfill and compaction, complete	1	EA	$ 10,000.00	$ 10,000.00	$ 8,500.00	$ 8,500.00	$ 7,000.00	$ 7,000.00	$ 20,000.00	$ 20,000.00
021	130-02	Remove and dispose of existing 18" PVC C-900 pipe including trenching, backfill and compaction, complete	38	LF	$ 250.00	$ 9,500.00	$ 240.00	$ 9,120.00	$ 700.00	$ 26,600.00	$ 385.00	$ 14,630.00
022	130-25	Base pavement adjust manhole to grade per IRWD specifications, complete	5	EA	$ 1,000.00	$ 5,000.00	$ 990.00	$ 4,950.00	$ 560.00	$ 2,800.00	$ 650.00	$ 3,250.00
023	130-25	Cap pavement adjust manhole to grade per IRWD specifications, complete	5	EA	$ 1,000.00	$ 5,000.00	$ 990.00	$ 4,950.00	$ 600.00	$ 3,000.00	$ 650.00	$ 3,250.00
024	130-10	Reconstruct top of existing manhole to raise to finish grade	1	EA	$ 1,750.00	$ 1,750.00	$ 1,500.00	$ 1,500.00	$ 14,000.00	$ 14,000.00	$ 15,000.00	$ 15,000.00
025	130-95	Preform and provide copy of video of sewer main to IRWD inspector per IRWD specifications, complete	1	LS	$ 7,500.00	$ 7,500.00	$ 6,000.00	$ 6,000.00	$ 13,500.00	$ 13,500.00	$ 5,000.00	$ 5,000.00
A.2		**SUB-TOTAL, SUBSECTION A.2 - MWS3 Sewer - Capital Code 8166**				**$ 915,495.00**		**$ 888,290.00**		**$ 909,110.00**		**$ 946,055.00**
NO.	**CODE**	**MWS3 Domestic Water - Capital Code 8166**	**QUAN**	**UNIT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**	**UNIT PRICE**	**AMOUNT**
026	131-05	Furnish and Install 12" PVC Waterline Pipe, C-900, DR 14, w/ Trenching, Bedding & Backfill per IRWD Std. W-17 including all Fittings, Appurtenances and Thrust Blocks per IRWD Std. W-16 and W-19 and as Shown on the Plans, Complete	2,893	LF	$ 120.00	$ 347,160.00	$ 118.00	$ 341,374.00	$ 135.00	$ 390,555.00	$ 141.00	$ 407,913.00
027	131-35	Furnish and Install 12" Butter Fly Valve CL-150B (FE x FE) and valve box per IRWD standard drawing W-22 and specifications, complete	13	EA	$ 7,000.00	$ 91,000.00	$ 6,800.00	$ 88,400.00	$ 6,000.00	$ 78,000.00	$ 6,500.00	$ 84,500.00

					ENGINEER'S ESTIMATE		L&S - LOW		LEATHERWOOD		FYDAQ	
028	131-05	Furnish and install temporary flush-out assemble per IRWD standard drawing W-12 and specifications, complete	3	EA	$ 3,500.00	$ 10,500.00	$ 3,200.00	$ 9,600.00	$ 3,600.00	$ 10,800.00	$ 5,500.00	$ 16,500.00
029	131-05	Furnish and Install 1" air-vac assemble per IRWD standard drawing W-11 and specifications, complete	1	EA	$ 3,500.00	$ 3,500.00	$ 6,200.00	$ 6,200.00	$ 6,300.00	$ 6,300.00	$ 7,370.00	$ 7,370.00
030	131-95	Chlorinate & Pressure Test Pipeline, including Disposal of Chlorinated Water, per IRWD Standards and Specifications, Complete	1	LS	$ 12,000.00	$ 12,000.00	$ 10,500.00	$ 10,500.00	$ 15,500.00	$ 15,500.00	$ 5,000.00	$ 5,000.00
031	131-15	Base pavement adjust valve can to grade per IRWD specifications, or Requested by Developer including Extra Move, complete	13	EA	$ 1,000.00	$ 13,000.00	$ 900.00	$ 11,700.00	$ 520.00	$ 6,760.00	$ 625.00	$ 8,125.00
032	131-15	Cap pavement adjust valve can to grade per IRWD specifications, or Requested by Developer including Extra Move, complete	13	EA	$ 1,000.00	$ 13,000.00	$ 900.00	$ 11,700.00	$ 570.00	$ 7,410.00	$ 625.00	$ 8,125.00
033	131-05	Remove and dispose temporary flush-out and Join existing 12" PVC per IRWD Specifications, complete	1	EA	$ 3,500.00	$ 3,500.00	$ 3,500.00	$ 3,500.00	$ 5,000.00	$ 5,000.00	$ 7,500.00	$ 7,500.00
A.4		**SUB-TOTAL, SUBSECTION A.4 - MWS3 Domestic Water - Capital Code 8166**				**$ 493,660.00**		**$ 482,974.00**		**$ 520,325.00**		**$ 545,033.00**

NO.	CODE	MWS3 Recycled Water - Capital Code 8166	QUAN	UNIT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
034	132-02	Furnish and Install 16" PVC Purple Waterline Pipe, C-900, DR 14, w/ Trenching, Bedding & Backfill per IRWD Std. W-17 including all Fittings, Appurtenances and Thrust Blocks per IRWD Std. W-16 and W-19 and as Shown on the Plans, Complete	2,666	LF	$ 180.00	$ 479,880.00	$ 179.00	$ 477,214.00	$ 165.00	$ 439,890.00	$ 182.00	$ 485,212.00
035	132-02	Furnish and Install 8" PVC Purple Waterline Pipe, C-900, DR 14, w/ Trenching, Bedding & Backfill per IRWD Std. W-17 including all Fittings, Appurtenances and Thrust Blocks per IRWD Std. W-16 and W-19 and as Shown on the Plans, Complete	128	LF	$ 80.00	$ 10,240.00	$ 80.00	$ 10,240.00	$ 115.00	$ 14,720.00	$ 85.00	$ 10,880.00
036	132-15	Furnish and Install 16" Butter Fly Valve (FE x FE) and valve box per IRWD standard drawing W-22 and specifications, complete	7	EA	$ 8,500.00	$ 59,500.00	$ 8,200.00	$ 57,400.00	$ 10,000.00	$ 70,000.00	$ 8,745.00	$ 61,215.00
037	132-15	Furnish and Install 8" Gate Valve (FE x FE) and valve box per IRWD standard drawing W-22 and specifications, complete	2	EA	$ 3,000.00	$ 6,000.00	$ 2,800.00	$ 5,600.00	$ 3,600.00	$ 7,200.00	$ 3,525.00	$ 7,050.00
038	132-02	Furnish and Install 2" air-vac assemble per IRWD standard drawing W-11 and specifications, complete	1	EA	$ 9,000.00	$ 9,000.00	$ 8,700.00	$ 8,700.00	$ 10,800.00	$ 10,800.00	$ 9,500.00	$ 9,500.00
039	132-20	Furnish and Install Blow off assembly (case 3) per IRWD standard drawing W-14 and specifications, with 6" valve at tee, complete	1	EA	$ 15,000.00	$ 15,000.00	$ 14,000.00	$ 14,000.00	$ 13,700.00	$ 13,700.00	$ 22,350.00	$ 22,350.00
040	132-05	Furnish and install temporary flush-out assemble per IRWD standard drawing W-12 and specifications, complete	2	EA	$ 3,500.00	$ 7,000.00	$ 3,200.00	$ 6,400.00	$ 4,900.00	$ 9,800.00	$ 5,500.00	$ 11,000.00
041	131-95	Chlorinate & Pressure Test Pipeline, including Disposal of Chlorinated Water, per IRWD Standards and Specifications, Complete	1	LS	$ 8,000.00	$ 8,000.00	$ 7,500.00	$ 7,500.00	$ 7,800.00	$ 7,800.00	$ 5,000.00	$ 5,000.00
042	132-15	Base pavement adjust valve can to grade per IRWD specifications, or Requested by Developer including Extra Move, complete	10	EA	$ 1,000.00	$ 10,000.00	$ 900.00	$ 9,000.00	$ 520.00	$ 5,200.00	$ 625.00	$ 6,250.00
043	132-15	Cap pavement adjust valve can to grade per IRWD specifications, or Requested by Developer including Extra Move, complete	10	EA	$ 1,000.00	$ 10,000.00	$ 900.00	$ 9,000.00	$ 570.00	$ 5,700.00	$ 625.00	$ 6,250.00
044	132-05	Remove and Dispose of 16" blind flange and join existing, complete	1	EA	$ 3,500.00	$ 3,500.00	$ 3,800.00	$ 3,800.00	$ 6,500.00	$ 6,500.00	$ 7,500.00	$ 7,500.00
A.6		**SUB-TOTAL, SUBSECTION A.6 - MWS3 Recycled Water - Capital Code 8166**				**$ 618,120.00**		**$ 608,854.00**		**$ 591,310.00**		**$ 632,207.00**

NO.	CODE	Additional Capital Construction Items on Plans not Identified in the Bid CPS (List Items)										
045						$ -		$ -		$ -		$ -
046						$ -		$ -		$ -		$ -
047						$ -		$ -		$ -		$ -
048						$ -		$ -		$ -		$ -
049						$ -		$ -		$ -		$ -
050						$ -		$ -		$ -		$ -
A.8		**SUB-TOTAL, SUBSECTION A.8 - Additional Capital Construction Items on Plans not Identified in the Bid CPS (List Items)**				**$ -**		**$ -**		**$ -**		**$ -**

A		**TOTAL - MARINE WAY STAGE 3 IRWD CODE 8166 - CAPITAL**				**$ 2,082,375.00**		**$ 2,031,738.00**		**$ 2,094,695.00**		**$ 2,144,627.40**

August 21, 2024
Prepared by: M. Robinson / E. Akiyoshi
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

FISCAL YEARS 2023-24 AND 2024-25 GENERAL REPLACEMENTS AND MODIFICATIONS PROJECTS BUDGET INCREASES

SUMMARY:

The Fiscal Year (FY) 2023-24 General System Replacements and Modifications (Gen Sys Mods) projects have experienced increased spending associated with emergency pipeline repairs and reimbursement expenditures to raise valves and manholes to grade following City street rehabilitation projects. Staff anticipates the expenditure rates to continue through the remainder of FY 2024-25 and the FY 2023-24 and FY 2024-25 Gen Sys Mods projects require budget increases. Staff recommends that the Board authorize budget increases for the following projects:

- Project 11774 FY 2023-24 Domestic Water Gen Sys Mods in the amount of $967,000, from $6,663,000 to $7,600,000;
- Project 11777 FY 2023-24 Recycled Water Gen Sys Mods in the amount of $1,037,000, from $2,663,000 to $3,700,000;
- Project 11850 FY 2024-25 Domestic Water Gen Sys Mods in the amount of $3,517,000, from $6,283,000 to $9,800,000;
- Project 11851 FY 2024-25 Recycled Water Gen Sys Mods in the amount of $3,597,000, from $2,103,000 to $5,700,000; and
- Project 11852 FY 2024-25 Sanitary Sewer Gen Sys Mods in the amount of $1,815,000, from $1,785,000 to $3,600,000.

BACKGROUND:

IRWD's Gen Sys Mods projects encompass a variety of capital activities, including emergency pipeline repairs, mechanical and electrical asset replacements, industrial coatings repairs, meter upgrades, and reimbursement for raising valves and manholes to grade following City street rehabilitation projects.

Due to increased activity and expenditures in FY 2023-24, staff recommends budget increases of $967,000 for Project 11774 and $1,037,000 for Project 11777. For FY 2024-25, staff expects this elevated activity to persist, along with additional raising valves and manholes to grade projects for $4.6 million in the Cities of Irvine and Lake Forest. As a result, staff recommends budget increases of $3,517,000 for Project 11850, $3,597,000 for Project 11851, and $1,815,000 for Project 11852.

FISCAL IMPACTS:

Projects 11774, 11777, 11850, 11851, 11852 are included in the FY 2023-24 and FY 2024-25 Capital Budgets. Budget increases shown in the following table are required to fund the projects.

Project No.	Current Budget	Addition <Reduction>	Total Budget
11774	$6,633,000	$967,000	$7,600,000
11777	$2,663,000	$1,037,000	$3,700,000
11850	$6,283,000	$3,517,000	$9,800,000
11851	$2,103,000	$3,597,000	$5,700,000
11852	$1,785,000	$1,815,000	$3,600,000

ENVIRONMENTAL COMPLIANCE:

Not Applicable.

RECOMMENDATION:

That the Board authorize budget increases to Fiscal Year 2023-24 for Project 11774 in the amount of $967,000, from $6,663,000 to $7,600,000, and for Project 11777 in the amount of $1,037,000, from $2,663,000, to $3,700,000; and authorize budget increases to Fiscal Year 2024-25 for Project 11850 in the amount of $3,517,000, from $6,283,000, to $9,800,000, Project 11851 in the amount of $3,597,000, from $2,103,000, to $5,700,000, and Project 11852 in the amount of $1,815,000, from $1,785,000, to $3,600,000.

LIST OF EXHIBITS:

None.

August 21, 2024
Prepared by: R. Mori / A. Uk
Submitted by: K. Burton / P. Weghorst
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

SYPHON RESERVOIR IMPROVEMENTS
VARIANCE AND FINAL ENVIRONMENTAL IMPACT REPORT ADDENDUM NO. 1

SUMMARY:

The AECOM design team has made significant progress on the Syphon Reservoir Improvement Project and is now advancing to the design to the 100% completion level. As the design progressed, AECOM and staff identified additional engineering services that are required to successfully complete the design. In parallel, staff advanced the development of the mitigation package that is required to offset the environmental impacts of the project, as identified in the Syphon Reservoir Improvement Project (SRIP) Final Environmental Impact Report (FEIR). A primary component of the mitigation package is the design and construction of off-site wetlands and riparian habitat that will be located adjacent to the San Joaquin Marsh. Environmental review of the proposed construction for the offsite habitat has been completed, and Addendum No. 1 to the FEIR has been prepared. Staff recommends that the Board:

- Authorize the General Manager to execute Variance No. 3 in the amount of $660,000 with AECOM for additional engineering design services, and
- Approve Addendum No. 1 to the FEIR, including the determinations set forth in the addendum, approve the modifications to the project consisting of off-site habitat as mitigation for the Syphon Reservoir Improvement Project and authorize staff to post and file a Notice of Determination.

BACKGROUND:

Improvements to Syphon Reservoir are needed to resolve challenges associated with having insufficient seasonal storage for recycled water supplies. Each year, recycled water demands fluctuate considerably due to variations in weather patterns. IRWD's recycled water storage reservoirs allow IRWD to store recycled water produced at IRWD's treatment plants during periods of low demand (generally in the winter) and then use the storage during periods of high demand (generally in the summer). Without adequate seasonal storage, recycled water produced during the winter in excess of available storage is lost to ocean disposal, and IRWD must then purchase costly supplemental imported water to meet summer demands.

In February 2021, IRWD contracted with AECOM to design improvements to Syphon Reservoir that would expand the storage capacity of the reservoir to about 5,000 acre-feet (AF) to meet the projected seasonal storage needs. AECOM completed the 90% design and is advancing to final design, which is estimated for completion in June 2025. Major project facilities include the zoned earthen embankment dam, spillway, inclined inlet / outlet, algae filtration, and disinfection systems. The project also includes modification of the Sand Canyon Avenue and Portola Parkway intersection and construction of a new site access road from that intersection to Syphon Reservoir to establish a new, dedicated access road into the site separate from the existing shared

site access road through the Crean Lutheran High School Athletics Complex. The construction of the site access improvements is underway and is scheduled for completion in November 2024.

Dams in California are regulated by the Department of Water Resources Division of Safety of Dams (DSOD). As part of the approval process for a new or replacement dam, each design submittal is transmitted to DSOD for review. To date, staff transmitted the 30%, 60%, and 90% design submittals to DSOD. DSOD completed reviews of the 30% and 60% submittals and is currently reviewing the 90% submittal. The 30% and 60% DSOD design reviews resulted in the identification of review comments and requests for additional engineering services that AECOM was tasked to address and resolve.

In June 2021, IRWD established an Independent Design & Safety Review Panel (IDSRP), which is comprised of five nationally recognized dam professionals with expertise in dam design, geotechnical and geological considerations, seismic considerations, hydrology, hydraulic structures, risk-informed decision making, and constructability. The purpose of the IDSRP is to provide an objective, third-party peer review of the design, engineering, and overall safety of the project and to provide comments, ideas, and recommendations that will be evaluated, addressed, and incorporated into the design. The IDSRP conducted comprehensive project reviews at the 30%, 60%, and 90% design completion levels. Each design review resulted in the identification of review comments, information requests, and requests for additional engineering analyses that AECOM was tasked to address and resolve.

Variance No. 3:

Since starting the preliminary design in February 2021, AECOM has made significant progress on the project and is now advancing to the 100% design completion level. As the design progressed, AECOM and staff identified additional engineering services that are required to be completed that were not included in the original scope of work. AECOM submitted Variance No. 3 in the amount of $660,000 for the additional services that are required to successfully complete the project.

The additional services have been grouped into three distinct categories as summarized below. The cost of the additional services by category is provided below, and a summary of each additional service is described in greater detail in Variance No. 3, which is provided as Exhibit “A”.

Additional Services Resulting from DSOD Design Review Comments	$189,800
Additional Services Resulting from IDSRP Design Review Comments	$114,880
Additional Services Resulting from Design Development	$355,320

Staff reviewed the variance request and recommends that the Board authorize the General Manager to execute Variance No. 3 in the amount of $660,000 with AECOM for the additional engineering design services described herein.

Addendum No. 1 to the FEIR:

In September 2017, IRWD contracted with Environmental Science Associates to prepare an Environmental Impact Report for the overall project. The FEIR was adopted by the IRWD Board of Directors at its July 26, 2021, meeting. A Notice of Determination was filed with the Orange County Clerk-Recorder and the CA State Clearinghouse on July 27, 2021.

The FEIR determined that construction of the expanded reservoir would result in impacts to woody riparian and freshwater marsh habitats and specified that creation of both on-site and off-site riparian / wetland habitat would be needed to assure that no net loss of such habitats would occur and to provide appropriate compensation for temporary loss of habitat value. Mitigation Measure BIO-4 in the FEIR stated that off-site land would be set aside for creation or restoration of habitat. In 2023, after consultation with United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW), the off-site mitigation area was selected as the 33.4-acre IRWD property in the San Joaquin Marsh south of Campus Drive. USFWS and CDFW have accepted the overall mitigation package in concept and agreed that the implementation of proposed onsite riparian / wetland mitigation and off-site mitigation at the San Joaquin Marsh site would adequately compensate for all impacts to riparian and wetland habitat and associated wildlife identified in the FEIR.

Environmental review of the proposed construction for the offsite habitat has been completed, and Addendum No. 1 to the FEIR has been prepared. The purpose of the Addendum is to describe and evaluate the potential environmental effects associated with the construction of the proposed off-site habitat. A location map of the off-site mitigation site is provided as Exhibit “B”.

Findings of Addendum No. 1 to FEIR:

The construction of off-site habitat for the Syphon Reservoir Improvement Project would not change the regulatory framework, impact discussion, mitigation measures, or significant conclusions as described in the FEIR. Environmental review of the construction of off-site habitat has been completed, and Addendum No. 1 to the FEIR has been prepared. Based on the information and analysis in the proposed Addendum No. 1, the Determination section of the addendum sets forth the proposed determinations by IRWD that no conditions described in the California Environmental Quality Act (CEQA) calling for the preparation of a subsequent EIR have occurred. A copy of Addendum No. 1 is provided as Exhibit “C”.

Project Schedule:

The dam design is nearing completion and will be completed in accordance with the following schedule milestones:

Final Design Complete and Final Plans Approved	June 2025
Construction Bid Opening	September 2025
Notice of Award – Construction	October 2025

FISCAL IMPACTS:

The Syphon Reservoir Improvements, Project 03808, is included in the FY 2024-25 Capital Budget. Sufficient budget is available to fund the recommendations presented herein.

Grant Funding:

Syphon Reservoir has been awarded both federal and state grant funding. To date, the project has received $24.5 million in federal Title XVI grant funding from the Bureau of Reclamation. The project was also originally awarded $15 million in state grant funding from the State Water Resources Control Board's (State Board) Water Recycling Funding Program. After the State's significant budget deficit in FY 2023-2024, that grant award was reduced to $5 million in the spring of 2024. Recently, the State Board restored an additional $3 million of the original grant to the project, bringing the total grant award to $8 million with the possibility of further grant funding restoration before April 2025.

ENVIRONMENTAL COMPLIANCE:

Section 15164 of CEQA Guidelines provides for the preparation of an addendum to a previously certified EIR by a lead agency or a responsible agency if some changes or additions to the project are necessary but none of the conditions described in CEQA calling for preparation of a subsequent EIR have occurred. Based on the information and analysis in the proposed Addendum No. 1, the Determination section of the Addendum sets forth the determinations by IRWD that none of such conditions have occurred.

RECOMMENDATION:

That the Board authorize the General Manager to execute Variance No. 3 in the amount of $660,000 with AECOM for additional engineering design services for Project 03808, and approve the proposed Addendum No. 1 to the Syphon Reservoir Improvement Project Final Environmental Impact Report, including the determinations set forth in Addendum No. 1, approve the modifications to the project consisting of the off-site habitat as mitigation for the Syphon Reservoir Improvements Project and authorize staff to post and file a Notice of Determination.

LIST OF EXHIBITS:

Exhibit "A" – AECOM Variance No. 3
Exhibit "B" – Off-site Mitigation Location Map
Exhibit "C" – Addendum No. 1 to the Syphon Reservoir Improvements Final EIR

Exhibit "A"

IRVINE RANCH WATER DISTRICT
PROFESSIONAL SERVICES VARIANCE

Project Title: Syphon Reservoir Improvement Project

Project No.: 03808 Date: 07/22/2024
Purchase Order No.: 628959 Variance No.: 3

Originator: [ ] IRWD [x] ENGINEER/CONSULTANT [ ] Other (Explain)_____

Description of Variance (*attach any back-up material*):
Additional engineering services to address additional design review comments from DSOD and the Independent Design and Safety Review Panel and for additional items identified during design development. The scope of work is summarized in the attached AECOM variance request letter.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor $	Direct Costs	Subcon. $	Total $
Additional engineering services per attached AECOM letter	3,996	Varies	659,660	340	0	660,000
					Total $ =	660,000

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
--	Additional engineering services per attached AECOM letter	N/A	None	N/A

Required Approval Determination:

Total Original Contract	$ 4,747,749	[ ] Director: Cumulative total of Variances less than or equal to $75,000.
Previous Variances $ 178,835 This Variance $ 660,000		[ ] Executive Director: Cumulative total of Variances less than or equal to $125,000.
Total Sum of Variances	$ 838,835	
New Contract Amount	$ 5,586,584	[ ] General Manager: Cumulative total of Variances less than or equal to $200,000.
Percentage of Total Variances to Original Contract	17.7 %	[X] Board: Cumulative total of Variances greater than $200,000.

ENGINEER/CONSULTANT: AECOM
Company Name

Michael Smith	07/22/2024	Kevin L Burton	7/24/24
Project Engineer/Manager	Date	Department Director	Date
By C. Pe	07/22/2024		
Engineer's/Consultant's Management	Date	General Manager/Board	Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: Syphon Reservoir Improvement Project

Project No.: 03808 Project Manager: Rich Mori

Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
1	Additional engineering services and RIDM support	11/28/2022	12/02/2022	$0
2	Additional engineering services to address IDSRP preliminary design review comments	11/30/2022	12/02/2022	$178,835
3	Additional engineering services to address additional DSOD and IDSRP design review comments and for additional items identified during design development	07/22/2024		$660,000

AECOM Imagine it. Delivered.

AECOM
999 Town & Country Road
Orange, CA 92868
www.aecom.com

714.567.2400 tel
714.689.7349 fax

July 22, 2024

Mr. Rich Mori, P.E.
Engineering Manager – Capital Projects
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

Subject: Variance Request No. 3 for Syphon Reservoir Improvements Project, PR 03808
Additional Engineering Services

Dear Rich,

This letter provides a description of additional engineering services and a fee estimate related to the Syphon Reservoir Improvements Project (SRIP). These services will be provided for Irvine Ranch Water District (IRWD), referred to herein as the District.

AECOM is currently providing design services for the District's Syphon Reservoir Improvement Project (SRIP). AECOM has recently been asked by the California Division of Safety of Dams (DSOD) and the District's Independent Design and Safety Review Panel (IDSRP) to provide additional services during the final design phase of the project. Also, additional tasks have been identified that will need to be completed during final design development. The scope of work and budget for these additional services are summarized below.

Scope of Work

Task 1: Additional Tasks Resulting from DSOD Design Review Comments

A. Incorporate IRWD, OCPW, Caltrans, and APWA detail sheets. DSOD has requested that all standard details that are referenced in the construction plans be included in the plan set. AECOM will add all standard details to the plan set from agencies including IRWD, Orange County Public Works, Caltrans, and American Public Works Association. This will add 43 sheets to the plan set and require edits to the details to tailor them for the project improvements.

B. Incorporate IRWD standard specifications and associated revisions. DSOD has requested that IRWD standard specifications be included in the Project Manual. AECOM will revise the IRWD standard specification sections as needed to tailor them for the project improvements. This will add 31 specification sections to the Project Manual.

C. Perform additional strength and stability analysis for DSOD. DSOD performs their own evaluation of the embankment material strengths and stability and indicates that the undrained strength cohesion used by AECOM was not conservative enough, and that using 33rd percentile strengths typically used in dam embankment design may not be reflective of how the dam may be constructed. They are requiring lower bound strength parameters. DSOD has not provided additional details on their strength estimation but is requiring AECOM modify the strength parameters used in the embankment design to use more conservative values. This will take several meetings and presentations to resolve the strength parameters. The new strength parameters will require AECOM to completely update all the stability analysis and to design a bench in the upstream slope to satisfy stability requirements. This will result in significant rework of the foundation excavation, reservoir grading, material balance, updating Final Design Report and the drawing package. This task includes additional meetings, presentations, calculation packages, updating Final Design Report, updating upstream slope of the dam to accommodate a bench, revising foundation excavation, updating material balance, regrading reservoir, and updating dam plan drawings (plan, cross sections, instrumentation sheets, etc.)

D. Additional DSOD meetings. Additional virtual meetings have been requested by DSOD to discuss and coordinate various topics of the final design. This includes resolving foundation criteria, compaction criteria, seepage partition walls, compaction of initial lifts on foundation, and others. A total of six additional meetings with DSOD are required.

Task 2: Additional Tasks Resulting from IDSRP Design Review Comments

A. Additional access and site security measures for spillway inlet and dissipator structures, including emergency access ladder system. The IDSRP recommended additional personnel access and site security measures be provided for the spillway inlet and dissipator structures. The access measures include OSHA complaint ladders and landings that will allow access into and out of these structures. Site security measures will include additional chain link fencing with 3-strand barb wire around the perimeter of the structures to prevent trespassers from entering the structures. These are deep structures, and District staff concurred with the implementation of the IDSRP's recommendations.

B. Inlet/outlet conduit access evaluation and additional details for manway access on inclined inlet/outlet structure. The IDSRP recommended that AECOM provide a maintenance access evaluation for the reservoir inlet/outlet conduit, particularly for the portion of the conduit that is within the proposed reservoir. AECOM will evaluate how IRWD maintenance staff can enter the conduit for future inspections, condition assessments, and repairs. AECOM will then design the necessary improvements, which likely will include the addition of a bolted manway access on the inclined inlet/outlet structure and all associated plans, sections, and details.

C. Inlet/outlet conduit special encasement design under embankment loads, sloped inlet/outlet structure functionality after seismic deformation, and design of additional isolation valve at downstream dam toe. The IDSRP requested that AECOM prepare three dimensional structural and seismic settlement modeling and calculations for the proposed concrete encased inlet/outlet conduit that will be installed under the proposed. The structural evaluation of the conduit encasement was requested to analyze the conduit as a composite structure (steel and concrete) and check for the rigidity of the pipe encasement under the estimated vertical load. The sloped inlet/outlet structure will be checked for functionality after seismic deformation of the slope. AECOM will submit a calculation package and special plan set details for IDSRP review. The IDSRP also recommended that AECOM provide an additional buried butterfly valve for the portion of the inlet/outlet conduit between the Emergency Outlet Structure and the Treatment Building. The additional isolation valve will allow the conduit to be closed to prevent a sinkhole from forming at the downstream toe of the dam in the case of a line break in this portion of piping.

D. Seepage partition wall redesign. AECOM provided a seepage partition wall design inside the embankment dam for the 60% submittal that was reviewed by the IDSRP. The IDSRP recommended revisions to the partition wall design due to concerns with potential cracking of the concrete partition walls as a result of embankment settlement or seismic loading. This will require a redesign of the partition walls using earthen materials, revisions to the Final Design Report, plans, sections, and details by AECOM. Implementation of this approach also resulted in additional discussion with DSOD on the basis of design for the revised seepage partition walls.

E. Reevaluation of seepage drainage blanket thickness. The IDSRP reviewed the proposed dam's seepage drainage blanket plans and calculations prepared by AECOM. The IDSRP asked AECOM to consider more conservative parameters to verify that there will be adequate capacity in the blanket to carry the seepage. This resulted in the need for additional seepage analysis, updating the Final Design Report, and modifying the blanket thickness on the plans and sections.

Task 3: Additional Tasks Resulting from Design Development

A. Consolidate Dam and Treatment Buildings sheets. AECOM prepared separate 60% design packages of construction plans and specifications for the dam and reservoirs improvements (Package 1) and the Treatment Building (Package 2). This approach was directed by IRWD staff at the start of the project since at that time it was unknown whether the dam and treatment building would be constructed under a single construction package. After completion of the 60% design, AECOM and IRWD staff determined that combining both projects into a single construction package would be the best approach for constructing the

project. The estimated budget for this task provides for the engineering, drafting, and technical editing work to consolidate the documents.

B. Build America Buy America (BABA) vendor outreach. AECOM will provide BABA vendor outreach for the design phase of the project. This task includes preparation of a spreadsheet for the specified construction products and equipment on the project, which identifies if these items conform to BABA requirements. This determination is important because the District received federal government funding for this project, which mandates the BABA requirements. AECOM will contact the product vendors for all specified products on this project to inquire if their products meet BABA requirements. This task is for initial outreach to equipment vendors only and not for implementing BABA purchasing requirements into the contract documents. The District will use this initial information to aid in its determination as to whether an exemption to BABA requirements will be pursued with the funding agency.

C. Additional sheets for Highline Canal access road improvements, Crean Lutheran High School walking trail, and WQ access ramp. The District asked AECOM to provide precise grading and drainage design for the Highline Canal access road, Crean Lutheran High School walking trail from their sports complex up to the Highline Canal road, and a concrete-lined access ramp that will allow the District's amphibious vehicle to drive from the dam crest road down to the floor of Syphon Reservoir. These improvements were not part of the original design scope, and eight additional design drawings will be required to incorporate these items.

D. Drainage analysis and improvements for rerouting the Highline Canal drainage into the City of Irvine storm drain system. AECOM will provide hydrology and hydraulic analysis in accordance with the County of Orange Hydrology Manual to reroute drainage from the Highline Canal access road and hillside slopes into the City of Irvine storm drain system that runs under Portola Parkway. This drainage previously flowed into terrace drains, down drains, the existing Syphon Reservoir, and into the existing syphon pipe. AECOM determined that rerouting this surface drainage into the existing 48-inch RCP storm drain that discharges into the City of Irvine's reinforced box culvert on Portola Parkway would improve the overall surface drainage flow patterns and civil site layout. This drainage analysis was not included in the original scope of work.

E. Additional SCE Service Plan submittal coordination. AECOM will provide additional coordination and conduct additional meetings with Southern California Edison (SCE) and IRWD to finalize the SCE Service Plan. This work will include additional Auto-turn software analysis to optimize location of the proposed portable generator connection box, transformer, PME switch, and related appurtenances.

F. Additional site improvements (seepage pump station, CCTV security cameras, ADAS panel, weather station). At completion of the 60% design, AECOM determined that additional

improvements would be required to incorporate recently developed District standards related to various items including site security and dam instrumentation. AECOM will design additional site improvements including a dam seepage system pump station, CCTV security cameras for the Treatment Building, Dam Control Building, and spillway structures, Automatic Data Acquisition Systems (ADAS) panel, and weather station. These items were not included in the original scope of work and will improve the security and operability of the project improvements in accordance with District standards and requirements.

G. Deep soil mixing design for Treatment Building. After completing the geotechnical investigation for the project, AECOM concluded that ground improvement deep soil mixing is required to improve the foundation of the proposed Treatment Building. Soft compressible soils were encountered in the downstream area of the existing dam that were discovered during the additional geotechnical investigation. As the building would be founded partially on well compacted soils and partially on soft compressible soils, it was concluded that ground improvement of the soft soils was required. This will require developing a ground improvement program, associated technical specifications, and additional plans for the Treatment Building foundation improvement.

H. Prepare isometric drawings for chemical metering pumps and leak detection system (3 sheets). At the District's request, AECOM will prepare isometric drawings for the chemical metering pumps inside the Chemical Room of the Treatment Building to provide an improved three-dimensional layout of the chemical feed system. AECOM will also design a leak detection system for the chemical feed lines that will run underground outside the Treatment Building.

I. Develop pre-selected equipment specifications and fixed-price proposals for Amiad filters and Milton Roy chemical feed pumps. The District has standardized on specific vendors for the algae filtration and chemical feed equipment for its facilities. As such, AECOM will develop pre-selected equipment specifications and procure fixed price vendor proposals for the Amiad algae filers and Milton Roy chemical feed pumps that are proposed for the Treatment Building. This approach allows the District to negotiate the cost for the equipment prior to bidding to ensure that the equipment is available to all bidding contractors at the same fixed cost.

J. Establish construction water supply from Zone C at Eastwood RW Pump Station (2 sheets). AECOM has determined that the preferred construction water supply can be provided by adding a temporary pressure reducing valve assembly within the pump room of the Eastwood Recycled Water Pump Station. This valve will allow Zone C water to be reduced in pressure and supplied to the existing Syphon Zone piping, that runs to the project site. This approach will provide for cost-effective construction water at the project site and will also eliminate the need for extensive above-ground temporary construction water piping. AECOM will prepare two new sheets to show the design modifications needed at the Eastwood Pump Station and

for the piping connection at the project site.

K. Prepare OCFA Fuel Modification Plan. The Orange County Fire Authority has requested that AECOM prepare a Fuel Modification Plan, which was not included in our original scope of services. The Fuel Modification Plan is a vegetation management code that requires landscaped areas adjacent to new structures be dedicated for permanent vegetation management activities to reduce the effects of a wildfire. The Fuel Modification Program brings fire-safe landscaping and construction features together to improve community safety and reduce property loss during wildfire emergencies. This task accounts for the effort needed to meet with OCFA, prepare the Fuel Modification Plan, and obtain approval of the plan from OCFA.

L. Additional BABA support (optional). This is an optional task that will only be used if the District is unable to obtain an exemption to the BABA requirements imposed by the federal funding agency providing funds to the project. Without an exemption, AECOM will be required to completely revise the technical specifications to only identify vendors and equipment manufacturers that comply with BABA requirements. This will require extensive research, outreach, and revision to the technical specifications. This task and associated budget will only be used by AECOM with written approval from the District.

Fee Estimate:

A summary of the estimated budget request for the proposed variance is provided below. The cost breakdown of total fee for variance request is provided as Attachment A.

Task No.	Description	Budget Requested
1.	Additional Tasks Resulting from DSOD Design Review Comments	$189,800
2.	Additional Tasks Resulting from IDSRP Design Review Comments	$114,880
3.	Additional Tasks Resulting from Design Development	$355,320
	TOTAL	$660,000

If you have any questions or comments, please contact me at (714) 697-5239 or via e-mail at michael.g.smith@aecom.com.

Sincerely,
AECOM Technical Services, Inc.

Michael Smith, PE, GE
Project Manager, Principal Engineer

Bryan C. Paine, PE
Deputy Project Manager, Vice President

Attachment:
Attachment A - Cost Breakdown of Total Fee for Variance Request No. 3

Attachment A
Cost Breakdown of Total Fee for Variance Request No. 3

Cost Breakdown of Total Fee for Variance No. 3
Irvine Ranch Water District
Syphon Reservoir Improvement Project - Additional Services
July 22, 2024

Task No.	Task Description	AECOM Labor Hours and Billing Rate									AECOM TOTAL HOURS	AECOM LABOR COSTS	AECOM DIRECT COSTS & MATERIALS[1]	TOTAL
		Project Manager / Principal Engineer / Architect	Senior Specialist / Consultant	Deputy Project Manager / Senior Engineer	Senior Engineer / Scientist / Geologist / Architect	Project Engineer / Scientist / Geologist / Architect	Senior Staff Engineer / Scientist / Geologist	Staff Engineer / Scientist / Geologist	Senior Designer / Estimator / Scheduler	Drafter / GIS / Graphics / Tech Editor				
		$280	$250	$220	$190	$150	$130	$110	$160	$100				
Variance No. 3														
1.	**Additional Tasks Resulting from DSOD Design Review Comments**													
	A. Incorporate IRWD, OCPW, Caltrans, APWA standard detail sheets (43 new sheets)		40		80	86		86	172		464	$ 75,080		$ 75,080
	B. Incorporate IRWD standard specifications and associated revisions (31 specification sections)	16	16	8	124			60		40	264	$ 44,400		$ 44,400
	C. Perform additional strength and stability analysis for DSOD	40	16		80	120			80		336	$ 61,200		$ 61,200
	D. Additional DSOD meetings (6 meetings)	8			16				24		48	$ 9,120		$ 9,120
	Subtotal Task 1	**64**	**72**	**8**	**300**	**206**		**146**	**276**	**40**	**1112**	**$ 189,800**	**$ -**	**$ 189,800**
2.	**Additional Tasks Resulting from IDSRP Design Review Comments**													
	A. Additional access and site security measures for spillway inlet and dissipator structures, including emergency access ladder system (8 sheets)	8	24	40		80		60	120		332	$ 54,840		$ 54,840
	B. Inlet/outlet conduit access evaluation and additional details for manway access on inclined inlet/outlet structure	4	8	4	4	40		24	2		86	$ 13,720		$ 13,720
	C. Inlet/outlet conduit special encasement design under embankment loads, sloped inlet/outlet structure functionality after seismic deformation, and design of additional isolation valve at downstream dam toe	8	40	16	4	64		24	2		158	$ 29,080		$ 29,080
	D. Seepage partition wall redesign	4			12			24	24		64	$ 9,880		$ 9,880
	E. Reevaluation of seepage drainage blanket thickness	4			16				20		40	$ 7,360		$ 7,360
	Subtotal Task 2	**28**	**72**	**60**	**36**	**184**		**132**	**168**		**680**	**$ 114,880**	**$ -**	**$ 114,880**
3.	**Additional Tasks Resulting from Design Development**													
	A. Consolidate Dam and Treatment Buildings sheets		16		40	80			100	244	480	$ 64,000		$ 64,000
	B. Build America Buy America (BABA) vendor outreach		4				80				84	$ 11,400		$ 11,400
	C. Additional drawings for Highline Canal access road improvements, Crean Lutheran High School Walking Trail, and WQ access ramp (8 sheets)	8	24	40	40	120			160		392	$ 68,240		$ 68,240
	D. Drainage analysis and improvements for rerouting the Highline Canal drainage into the City of Irvine storm drain system		8			40	60			40	148	$ 19,800		$ 19,800
	E. Additional SCE Service Plan submittal coordination	4	2		40				40		86	$ 15,620		$ 15,620
	F. Additional site improvements (seepage pump station, CCTV security cameras, ADAS panel, weather station)	8	24		48		24		80		184	$ 33,280		$ 33,280
	G. Deep soil mixing design for Treatment Building	8			60			24	40		132	$ 22,680		$ 22,680
	H. Prepare isometric drawings for chemical metering pumps and leak detection system (3 sheets)	8	8			40			80		136	$ 23,040		$ 23,040
	I. Develop pre-selected equipment specifications and fixed-price proposals for Amiad filters and Milton Roy chemical feed pumps	8	16		60	40			40		164	$ 30,040		$ 30,040
	J. Establish construction water supply from Zone C at Eastwood RW Pump Station (2 sheets)	4	12		24	8		16	40		104	$ 18,040		$ 18,040
	K. Prepare OCFA Fuel Modification Plan	2	4		32			16	60		114	$ 19,000	$ 180	$ 19,180
	L. Additional BABA support (optional)	12	16	24		40	80			8	180	$ 29,840	$ 160	$ 30,000
	Subtotal Task 3	**62**	**134**	**64**	**344**	**368**	**244**	**56**	**640**	**292**	**2204**	**$ 354,980**	**$ 340**	**$ 355,320**
	TOTAL	**154**	**278**	**132**	**680**	**758**	**244**	**334**	**1084**	**332**	**3,996**	**$ 659,660**	**$ 340**	**$ 660,000**

Notes & Assumptions:

1.) Direct Costs / Materials provided with no markup and include costs such as mileage to meetings/site and reproduction.

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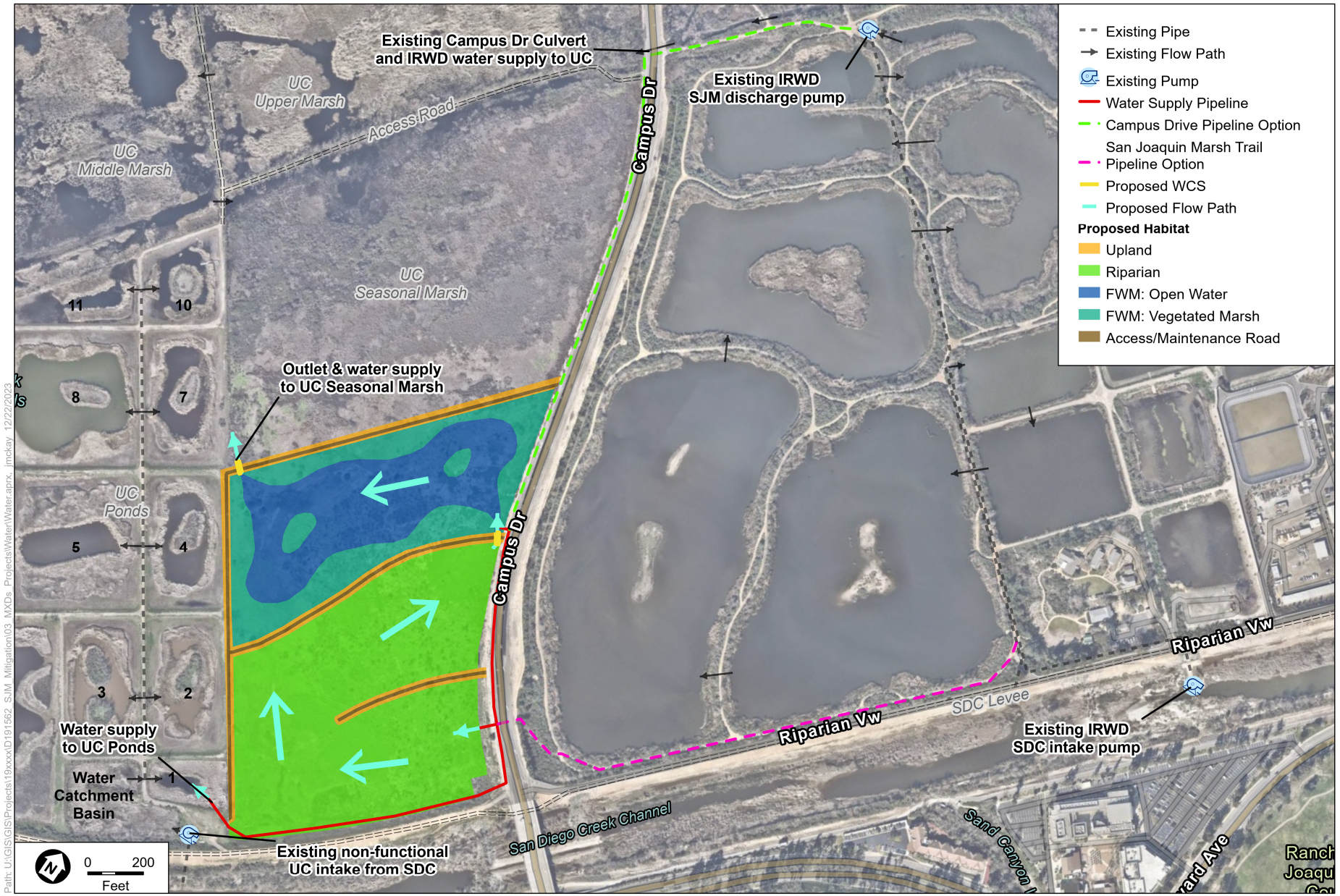
Exhibit "B"



SOURCE: ESA, 2023; Mapbox, 2023; IRWDNAIP

Note: FWM=Freshwater Marsh, SDC=San Diego Creek, WCS=Water Control Structure

SRIP Off-Site Mitigation Project

Figure 2
Proposed SRIP Off-Site Mitigation Project

ESA

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Exhibit "C"

A COPY OF EXHIBIT "C" CAN BE OBTAINED FROM THE DISTRICT SECRETARY AND IS AVAILABLE FOR DOWNLOAD AT THE FOLLOWING LINK:

https://www.irwd.com/images/pdf/construction/Syphon/SRIP_Addendum_8.13.24_COMBINED.pdf

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August 21, 2024
Prepared by: J. Burk / R. Mori
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

ORANGE HEIGHTS ZONE 5 TO 6 AND ZONE C+ TO E BOOSTER PUMP STATIONS
CONSULTANT SELECTION

SUMMARY:

The Irvine Community Development Company (ICDC) is currently developing the Orange Heights neighborhood located in the City of Orange, along Santiago Canyon Road between the 261 Toll Road and Jamboree Road. ICDC completed the Sub Area Master Plan (SAMP) update for Orange Heights, which proposes new Zone 5 to 6 domestic water and Zone C+ to E recycled water booster pump stations to serve the new development. Staff solicited proposals from five engineering firms for the design of the proposed pump stations. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Lee + Ro in the amount of $836,760 for engineering design services for the Orange Heights Zone 5 to 6 and Zone C+ to E Pump Stations, Projects 07136 and 07139.

BACKGROUND:

Orange Heights, which is divided into northern and southern sections by Santiago Canyon Road, consists of approximately 200 acres of low to medium density residential units and over 200 acres of open space and landscaped areas. The Orange Heights SAMP update describes various IRWD infrastructure improvements required to serve the development including new domestic water and recycled water pump stations and a new domestic water reservoir.

The proposed Zone 5 to 6 and Zone C+ to E pump stations, located next to the existing Zone 5 to 8 pump station on Santiago Canyon Road (shown on Exhibit "A"), will supply domestic water and recycled water to the Orange Heights community. The proposed Zone 5 to 6 domestic water pump station will feed the proposed 2.4 million gallon (MG) Zone 6 domestic water reservoir that will serve the northern section of the development and after reducing pressure through a pressure reducing valve, will serve the southern section. The proposed Zone C+ to E recycled water pump station will directly feed the entire Orange Heights development through a closed-loop system.

The design of these pump stations has been started and stopped multiple times over the past 20 years based on ICDC's decisions to start and stop work on the development over that same period of time. In 2016, IRWD selected Lee + Ro as the design engineer through a competitive proposal process. At that time, Lee + Ro had completed a draft Preliminary Design Report (PDR) when ICDC stopped work on the development, and staff paused the design work accordingly. In 2022, ICDC notified IRWD that the development was being started again. Rather than requesting new proposals for the pump station design, IRWD negotiated an updated scope and fee with Lee + Ro and authorized Lee + Ro to continue advancing the design. In 2023, at the completion of the final PDR, ICDC again stopped work on the development, and staff paused the design work again.

Earlier this year, ICDC notified IRWD that the development was being started again. Since so much time had passed since the initial request for proposals (RFP) in 2016, and the fact that several members of Lee + Ro's original design team, including the project manager, had left Lee + Ro, staff issued a new RFP for the design of the pump stations. This approach allowed staff to evaluate new design teams and to obtain updated fee proposals for the design work.

Consultant Selection:

Staff issued an RFP for engineering design services to five design firms including Brown & Caldwell, Lee + Ro, Stantec, Tetra Tech, and West Yost. Staff received proposals from Lee + Ro and Stantec. The other three firms declined to submit citing heavy existing workloads and schedule conflicts with their primary pump station design staff.

While both firms provided proposals that met the project objectives, Lee + Ro's approach to the project exceeded that presented by the other firm. In addition, Lee + Ro has successfully completed several recent projects for IRWD and is well-versed with IRWD's standard drawings, technical specifications, and construction plan requirements. Lee + Ro also demonstrated the most relevant pump station experience with many recent pump station projects that closely match the scope of this project. With Lee + Ro's historical knowledge and previous experience on the project, they are well-suited to complete the project in accordance with the aggressive schedule milestones. The consultant selection matrix is attached as Exhibit "B", and Lee + Ro's scope of work and fee proposal are attached as Exhibit "C".

Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement, in the amount of $836,760, with Lee + Ro since their design approach, schedule, and staff hours are consistent with the project goals and objectives.

Design Schedule:

The design phase will be completed in accordance with the following schedule milestones.

Kick-Off Meeting	September 2024
Preliminary Design Report Validation Submittal	December 2024
Final Plans Approved	August 2025
Bid Opening and Notice of Award (Construction)	October 2025

FISCAL IMPACTS:

The Orange Heights Zone 5 to 6 and Zone C+ to E Booster Pump Stations, Projects 07136 and 07139 respectively, are included in the Fiscal Year 2024-25 Capital Budget. The existing budgets are sufficient to fund the recommendation presented herein.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA). In compliance with CEQA, the California Public Resources Code Section 21000 et. seq., and per the California CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3, as lead agency, the City of Orange filed a Notice of Determination with the County of Orange on November 8, 2005. In 2016, the City of Orange prepared an Addendum to Santiago Hills Environmental Impact Report (EIR) to address changes in the development since certification, including the construction of the Orange Heights Zone 5 to 6 and Zone C+ to E Booster Pump Stations and the Orange Heights Zone 6 Reservoir. The City of Orange approved the Addendum on July 12, 2016, and filed a Notice of Determination with the County of Orange on July 15, 2016.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with Lee + Ro in the amount of $836,760 for engineering design services for the Orange Heights Zone 5 to 6 and Zone C+ to E Booster Pump Stations, Projects 07136 and 07139.

LIST OF EXHIBITS:

Exhibit “A” – Location Map
Exhibit “B” – Consultant Selection Matrix
Exhibit “C” – Scope of Work and Fee Proposal

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Exhibit "A"
ORANGE HEIGHTS LOCATION MAP

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Exhibit "B"

CONSULTANT SELECTION MATRIX

Orange Heights Zn 5 to 6 and Zn C+ to E Booster Pump Stations						
Item	Description	Weights	Stantec		Lee & Ro	
A	TECHNICAL APPROACH					
1	Project Understanding	30%	2		1	
2	Project Approach	30%	1		2	
3	Project Team	40%	2		1	
	Weighted Score		1.7		1.3	
	Ranking of Consultants		**2**		**1**	
B	SCOPE OF WORK					
TASK			Task Hours	FEE	Task Hours	FEE
1	Project Management		236	$83,676	304	$73,402
2	Preliminary Design		796	$278,019	756	$220,813
3	Final Design		3,441	$904,887	2,871	$527,303
2.A	Surge Study		(included in Task 3 above)		14	$15,242
	TOTAL ENGINEERING SERVICES FEE		4,473	**$1,266,581**	3,945	**$836,760**
C	OTHER					
	Number of Drawings		103		112	
	Engineering Services Fee per Design Drawing		$8,785		$4,708	
	Sub Consultants					
	Electrical		In-House		In-House	
	Structural		Peterson Structural Engrs.		In-House	
	Architectural		Gillis + Panichapan		In-House	
	Geotechnical		NMG Geotechnical		Ninyo & Moore	
	Mechanical		In-House		In-House	
	Hydraulic Analysis/Pump Selection		In-House		In-House	
	Survey		In-House		The Prizm Group	
	Surge Analysis		In-House		Flow Science	
	Potholing		T2 Utility Services		Underground Solutions	
	Exceptions taken to IRWD Std. Contract		None		None	
	Insurance (Professional & General Liability)		Yes		Yes	

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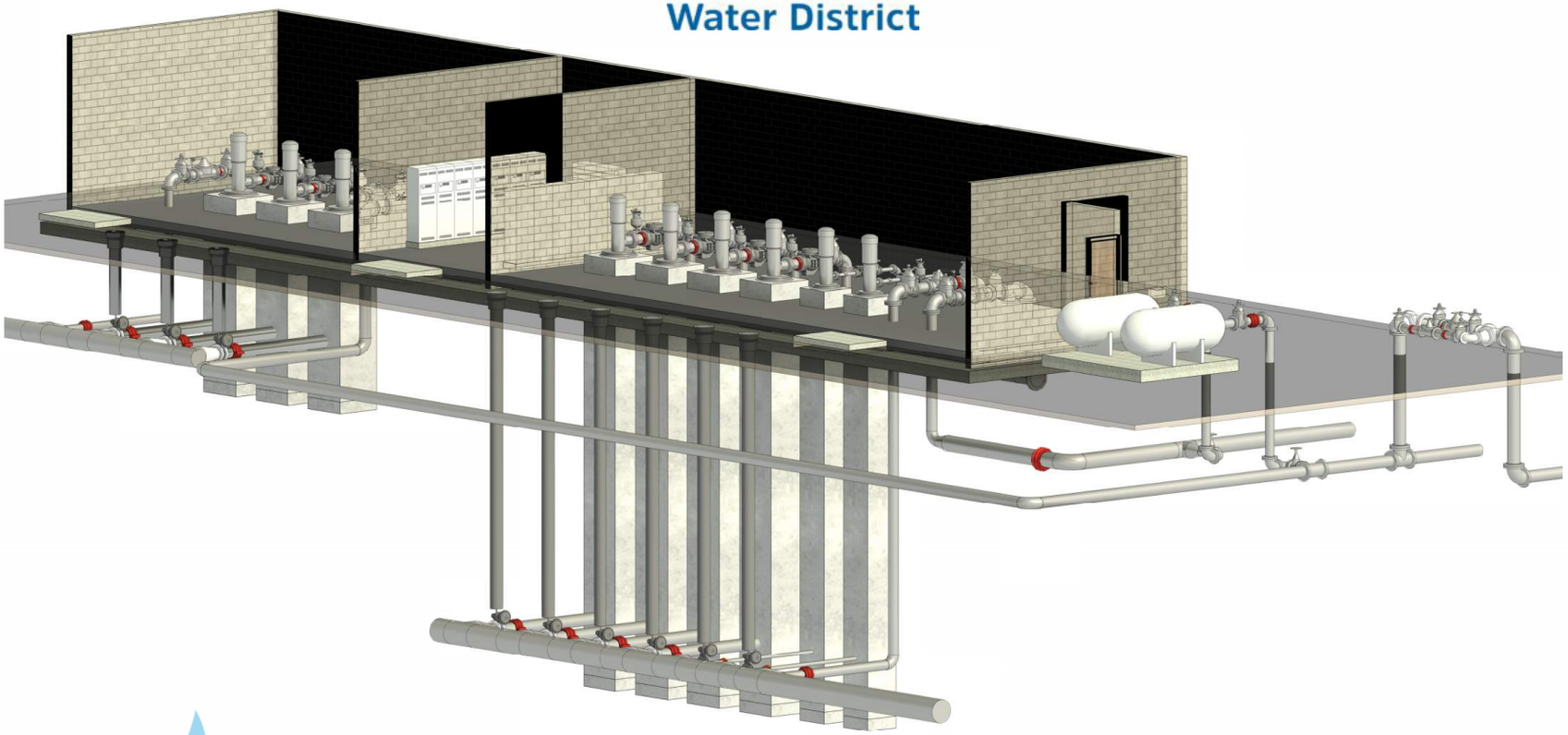
Irvine Ranch Water District



PROPOSAL FOR

Engineering Design Services for the Orange Heights Zone 5 to 6 and Zone C + to E Pump Stations Project

August 6, 2024

Proposal by:

LEE+RO

INFRASTRUCTURE ENGINEERS

1199 South Fullerton Road
City of Industry, CA 91748

626-912-3391 lee-ro.com

1. SCOPE

Background Information:

It appears that market conditions and housing development are back in full swing for the Irvine Company. Round three, here we come!

LEE + RO was originally awarded this project back in 2016, but market conditions turned against the Irvine Company and the project was shelved. Prior to being shelved, we were pressed to "put down our pencils" and wrap up the PDR to a stopping point. LEE + RO was able to issue a summary draft version of the PDR back in 2017.

Five years later, economic conditions became favorable again, and the Irvine Company had IRWD re-kick off the project for the second time in 2022. The developer made some changes to their development plans and by this time, IRWD had also installed a new reservoir at the site. For round two of the project, LEE + RO was able to use the existing contract vehicle with IRWD. LEE + RO completed a comprehensive PDR in 2023. Then for the second time, the Irvine Company again shelved the project.

Now, here we are in 2024 and unfortunately our existing contract would be almost ten years old by now, and has long since expired, and the project was also closed out by Contracts.

Even though almost ten years have passed since this project first started, we essentially have the same team available at LEE + RO to work on this project. Providing a positive rewarding work environment at LEE + RO has allowed for great success in long-term staff retention. This staff retention at LEE + RO allows synergies for a collaborative work environment that pays off for our clients allowing for speed and efficiency in our designs.

Having the same design team will allow LEE + RO to pick this project back up for the third time and hit the ground running.

Eric Lovering, will be the Principal-in-Charge for this contract. Eric Lovering's first exposure to IRWD was back in 2006 for the Foothill Zone 6A BPS. Eric was the PM for that project and his counterpart at IRWD was none other than Rich Mori. Over the last 20 years both Eric Lovering and Rich Mori have moved up through the ranks at their respective organizations and have become industry leaders. Over the years, Eric and Rich have had numerous opportunities working together as they each rose through the ranks. Both Eric and Rich now manage a team of project managers under them supporting numerous successful capital projects every year.

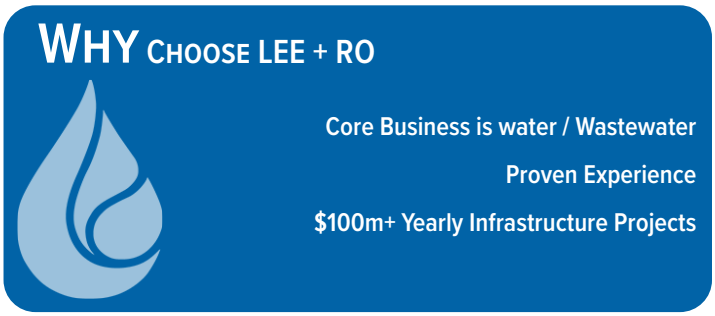
Below are some examples of past IRWD projects, all of which Eric Lovering had a significant role or part in:

- *Santiago Canyon Pump Station Improvements (4-Sites)*
- *Turtle Rock Zone 3 Reservoir Chloramine Booster Station*
- *Michelson Water Recycling Plant, Unit Substation T1*
- *Hidden Canyon Zone 3 to 4 Domestic Water and Zone B to C Recycled Water Booster Pump Station*
- *IIC East Zone A to B Booster Pump Station Upgrades*
- *Turtle Rock Pump Station*
- *Foothill Ranch Zone 6A Pump Station*

IRWD has many new hires, and many of the engineers we worked with previously at IRWD are no longer there. So, for those of you who are reading this and are not that familiar with LEE + RO, here is a quick recap.

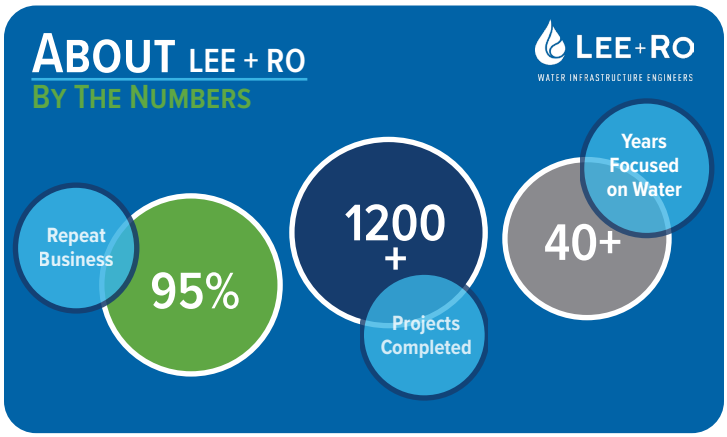
LEE + RO is a certified SBE engineering company, with big firm experience. LEE + RO has a proud history and culture of providing innovative solutions to complex and unique problems. LEE + RO is a well-established industry leader and subject matter expert in pump station design in California. LEE + RO has been entrusted to engineer a wide variety of pump stations for our clients, and we have a large library of pump station projects to lean on, all of which had their unique engineering obstacles that we were able to successfully overcome.

In California, we design about a dozen pump station projects every year, which account for about half of our business. The other half is water/wastewater treatment plants and linear pipeline projects.



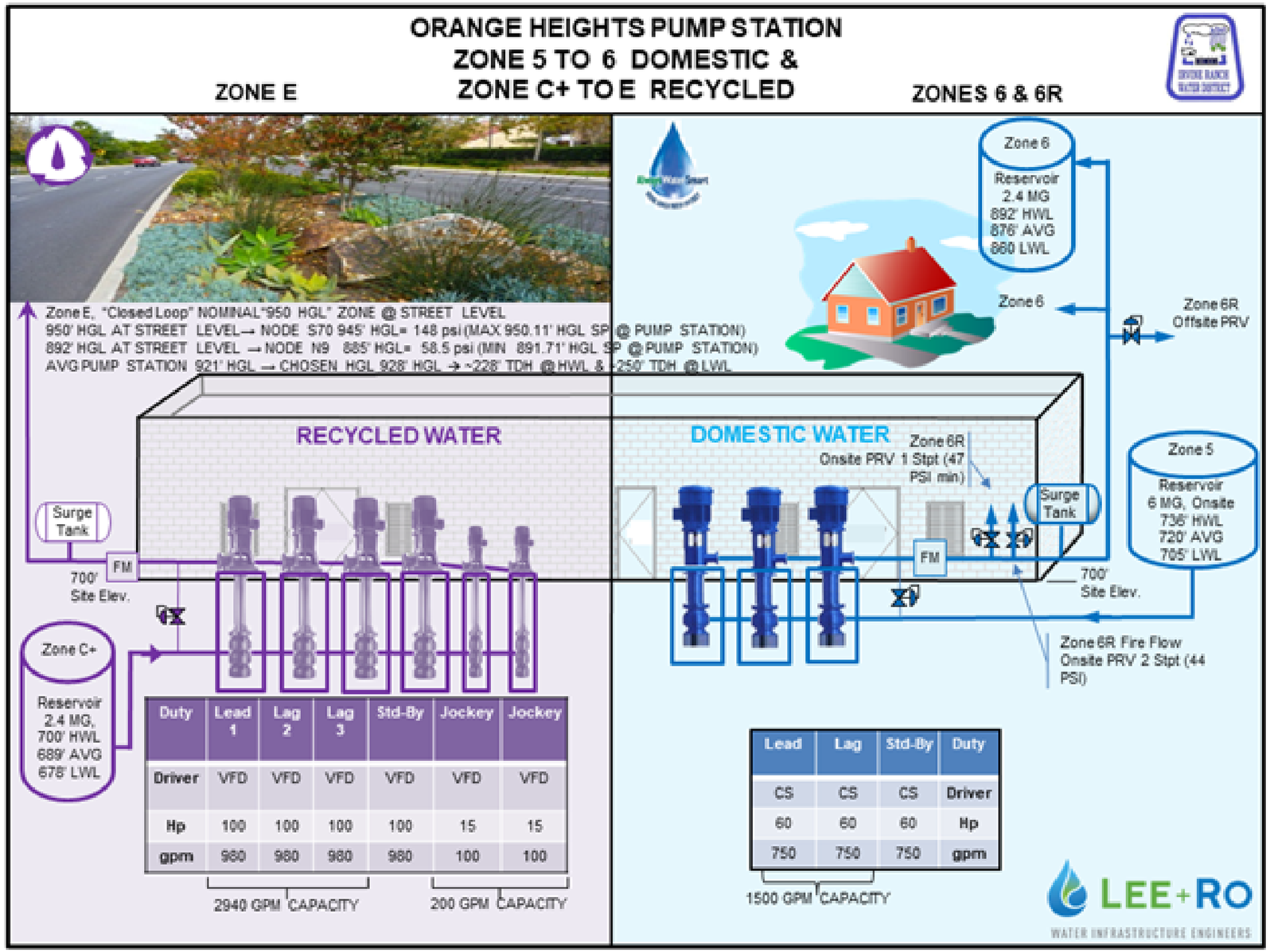
And the heart of every pump station project, one must start with the hydraulics. Afterall, moving water from one location to the next is the sole purpose of a pump station. Eric Lovering, LEE + RO's Chief Engineer, can be quoted almost daily as stating, "the pump station can only operate where the pump curve intercepts the system curve, ***No Exceptions!***"

LEE + RO is also a well-established industry leader in the discipline of Electrical and Instrumentation and Controls when it comes to pump stations. Our electrical and I&C engineers have worked closely with Joel Nash over the years ensuring a smooth implementation of the projects.



LEE + RO Methodology to Accomplish the Scope of Work:

Since we wrote the PDR, we won't regurgitate the technical scope of work in detail, and our proposal herein will concentrate on how we will perform the work to ensure that a high-quality final product is issued to IRWD. We take no exception to the SCOPE OF WORK as written in the RFP. We have, however, included additional optional services if desired. The following graphic produced by LEE + RO summarizes the overall project in one simple exhibit.



Duty	Lead 1	Lag 2	Lag 3	Std-By	Jockey	Jockey
Driver	VFD	VFD	VFD	VFD	VFD	VFD
Hp	100	100	100	100	15	15
gpm	980	980	980	980	100	100

Lead	Lag	Std-By	Duty
CS	CS	CS	Driver
60	60	60	Hp
750	750	750	gpm

The LEE + RO team is looking forward to restarting the engineering design services for the Orange Heights Zone 5 to 6 and Zone C+ to E Pump Stations Project. During the PDR stage, we worked closely with IRWD Engineering, Maintenance, and Operations Staff to develop a consensus layout that best serves all parties' interests.

PDR Validation Thru Final Design:

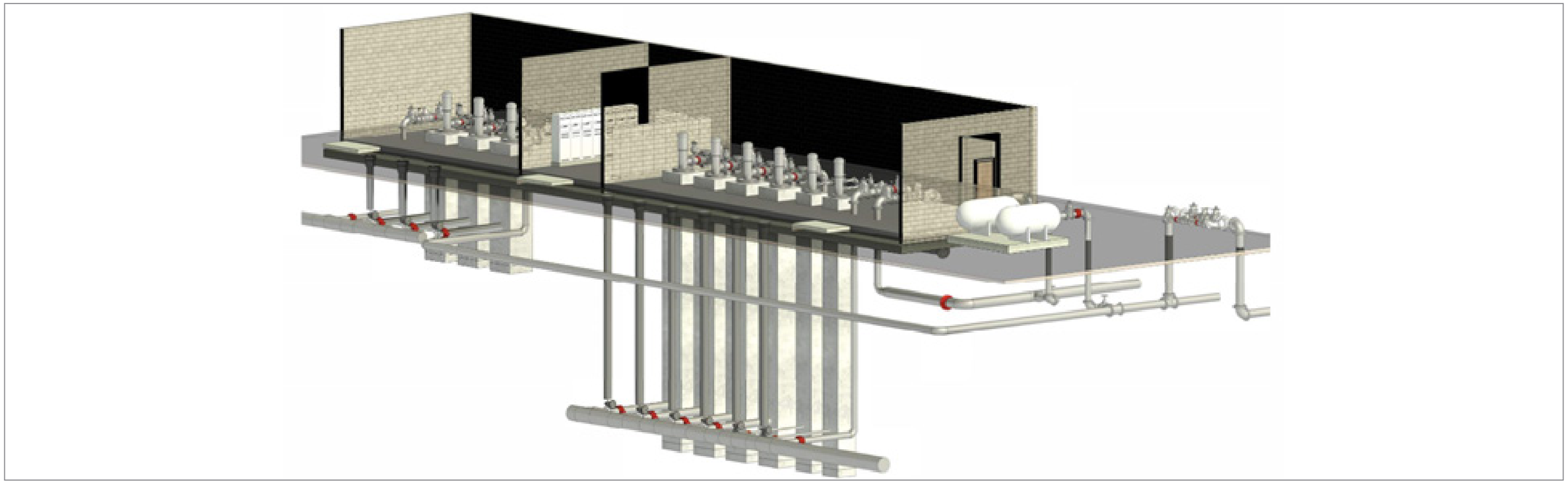
We plan to move very quickly with the validation of the PDR. LEE + RO originally produced this document last year and there doesn't appear to be any changed conditions to necessitate redoing any portions of the PDR. LEE + RO will review the existing hydraulic modeling report and confirm that none of the conditions have changed. We will wrap up any loose ends such as the perimeter fence/wall, roof type/details, and advance the grading design.

We will schedule the geotechnical borings to occur during the first week after an NTP is provided. After we have confirmed that the Irvine Company has not changed their modeling and design intent, we will release our subconsultant, Flow Science, to complete the remaining Zone C+ to E surge study. In parallel with the PDR Validation, we will engage SCE for undergrounding, pole removal, and new electrical service.

To further clarify, we do not plan on changing or re-issuing the PDR. We will, however, issue a letter-style report as an addendum to further advance and enhance the original PDR.

Per the RFP, the 60% Design Submittal is not due until March 2025. We can easily accelerate the schedule and move up that date and all the subsequent dates by several months. We are able to do this because at LEE + RO we have completely transitioned to 3D modeling. In terms of traditional drawing production, there is a large drafting effort to go from a 30% to a 60% design. Traditional 30% designs mostly comprise only plans to confirm the overall layout, and then for the development of the 60% design, we would begin manually cutting sections. All that goes out the window now. The use of 3D drafting allows for quick section cuts and 3D isometric drawings with just a few clicks of the mouse.

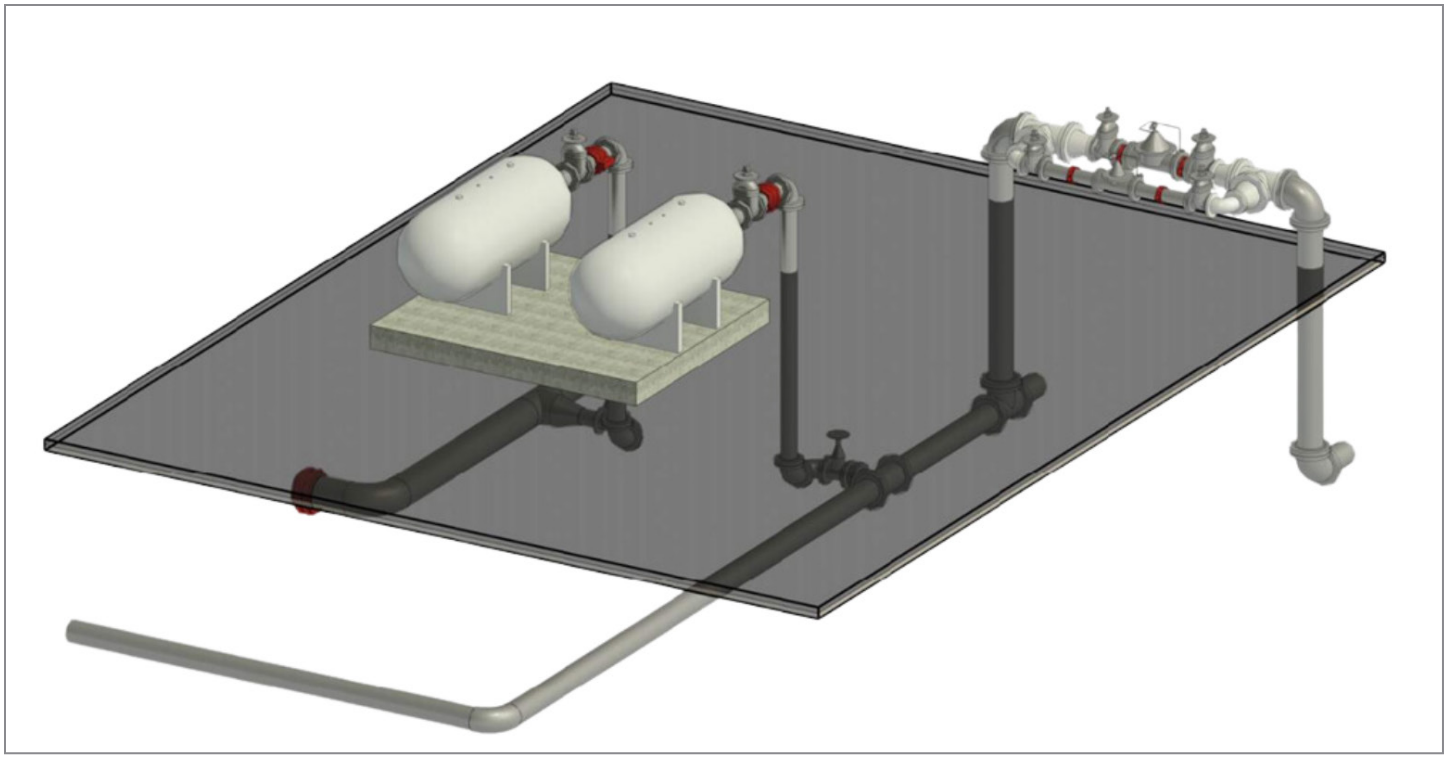
The 3D drawings presented in this proposal are not just pretty pictures. These 3D exhibits are scaled 3D models ready for cutting plans and section sheets.



3D Modeling:

For the development of the Booster Pump Station, we utilized Revit BIM (Building Information Modeling) software, which offers significant advantages over traditional 2D software. Revit enables us to create a comprehensive and highly detailed 3D model that integrates all aspects of the design, including architectural, structural, and MEP (mechanical, electrical, plumbing) systems. This approach allows for better visualization and understanding of the project, facilitating more informed decision-making, and reducing the risk of errors and omissions. A list of benefits from using Revit BIM software follows:

1. **Enhanced Collaboration:** Revit's collaborative environment allows our multidisciplinary teams to work concurrently on the same model, ensuring seamless integration and coordination. This reduces rework and enhances communication among stakeholders.
2. **Increased Efficiency:** Revit's intelligent model-based process streamlines workflows and automates repetitive tasks, significantly increasing productivity. Changes made to the model are automatically updated throughout all views, schedules, and documentation, ensuring consistency and accuracy.
3. **Improved Accuracy:** Revit's parametric components and data-rich environment allow for precise design and documentation. This leads to more accurate quantity takeoffs, cost estimates, and scheduling, providing a reliable basis for project planning and execution.
4. **Clash Detection:** With Revit, we can perform clash detection during the design phase, identifying and resolving conflicts between different building systems before construction begins. This proactive approach minimizes costly on-site changes and delays.
5. **Lifecycle Management:** Revit BIM provides valuable data that can be used throughout the lifecycle of the pump station, from design and construction to operation and maintenance. This ensures the facility is managed efficiently and effectively over its entire lifespan.



Surge Study: LEE + RO will utilize Flow Science, our subconsultant who did the original surge studies. We have included both the C+ to E and the Zone 5 to 6 as separate line items in the proposal. We don't anticipate the need to update the Zone 5 to 6 study, but to be conservative, we have kept the line item in the fee proposal as insurance.

Geotechnical Report: Ninyo & Moore will provide the Geotechnical Report. Based on our review of the previous geotechnical report, regional geologic and seismic information, and our experience at the site, the geology is complex in the site vicinity, including several inactive faults that cross the reservoir site. The geologic units at the reservoir site include existing fill, landslide deposits, several sedimentary bedrock units, and volcanic bedrock of the El Modeno Volcanics. Based on previous geologic mapping at the site, the proposed pump station building is anticipated to be underlain by sandstone bedrock of the Topanga Formation and siltstone/claystone bedrock of the La Vida Member of the Puente formation, which is in fault contact. There is limited groundwater information in the site area. Groundwater was encountered during a previous geotechnical study (Kleinfelder, 2015) at an elevation of approximately 659, which is deeper than the anticipated excavations for the pump cans. The project area is not located in a Seismic Hazard Zone for soil liquefaction or within a zone of required investigation for active faulting.

The domestic water pump station will have pump cans that extend approximately 15 feet below the finish floor elevation of the pump station, while the recycled water pump station pump cans will extend to approximately 35 feet below the finish floor elevation.

Subsurface exploration consists of the drilling, logging, and sampling of four hollow-stem auger (HSA) borings to evaluate the subsurface conditions up to approximately 45 feet deep, or refusal, whichever occurs first. The borings will be observed and logged by a representative of our firm. Representative soil and bedrock samples will be collected from the borings for laboratory testing. Boreholes will be backfilled with the drill cuttings and excess soil cuttings, if any, will be spread on-site.

Survey: If deemed necessary, the Prizm Group will perform a supplemental ground topographic survey of the site to resurvey areas that may have changed since the original survey was completed in 2022. The effort budgeted is up to one full day of onsite survey.

Potholing: Though not specifically listed in the RFP, we have added an optional potholing line item in the fee proposal. If it is later determined potholing is required, we will utilize Underground Solutions. We have budgeted for 6 potholes.

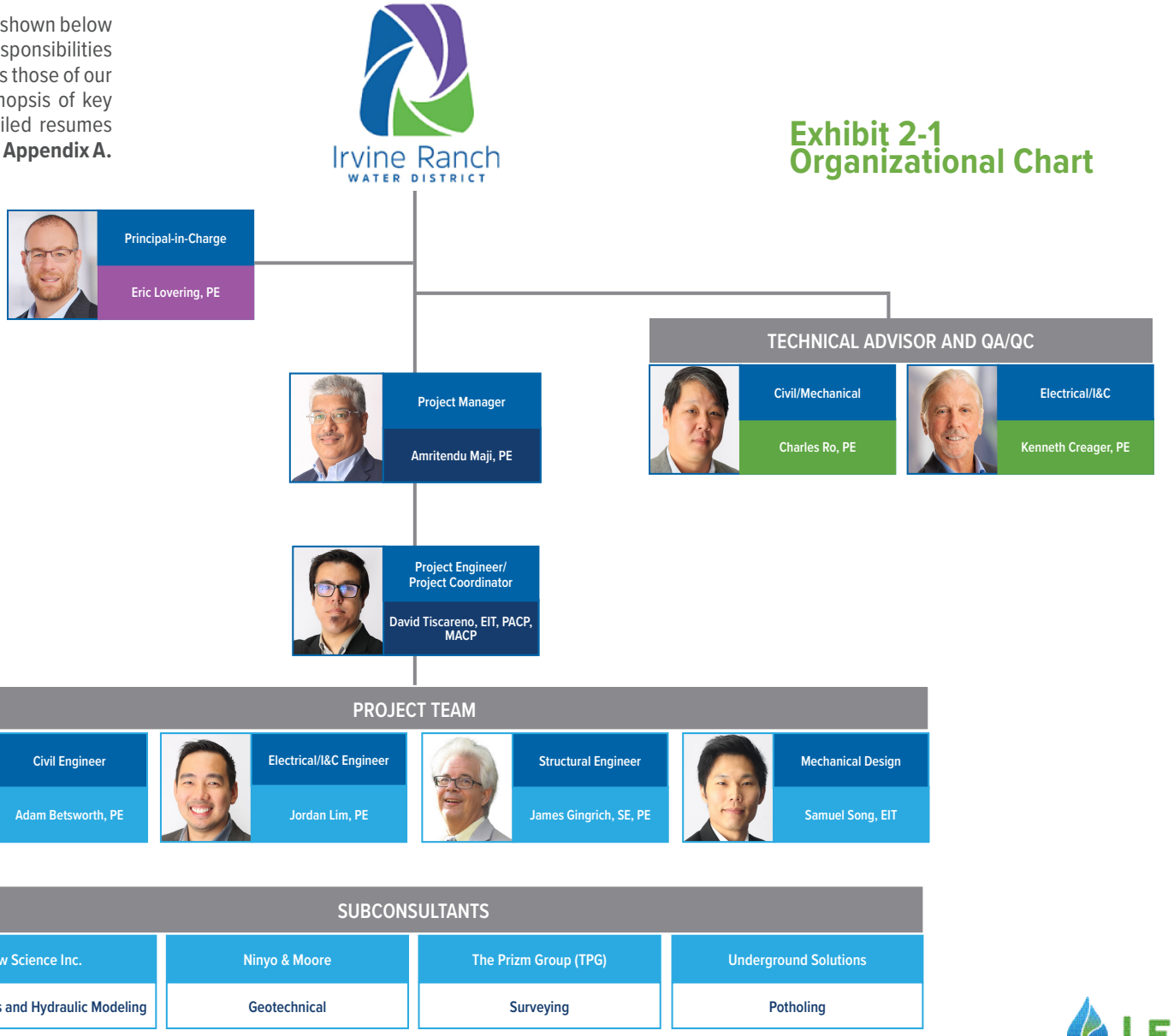
Anticiapted Drawing List: Below is a list of anticipated drawings for the project.

GENERAL		
Sheet	Dwg #	Descriptions
1	G-1	Title Sheet
2	G-2	Location & Vicinity Maps & Drawing Index
3	G-3	General Notes - 1
4	G-4	General Notes - 2
5	G-5	Symbols & Abbreviations
DEMOLITION		
6	D-1	Site Demolition Plans - 1
7	D-2	Site Demolition Plans - 2
8	D-3	Site Demolition Plans - 3
9	D-4	Site Demolition Plans - 4
CIVIL		
10	C-1	Yard Piping Plan
11	C-2	Paving And Grading Plan
12	C-3	Paving And Grading Profiles
13	C-4	Wall And Signage Plan
14	C-5	Civil Details - 1
15	C-6	Civil Details - 2
16	C-7	Civil Details - 3
17	C-8	Facilities Area Improvement Plan - 1 (Figure 6.7)
18	C-9	Facilities Area Improvement Plan - 2 (Figure 6.8)
19	C-10	Facilities Area Improvement Plan - 3 (Figure 6.9)
20	C-11	Facilities Area Improvement Plan - 4 (Figure 6.10)
21	C-12	Manhole Sewer Connection Details
ARCHITECTURAL		
22	A-1	Architectural Abbreviations, Notes , & Schedules
23	A-2	Architectural Floor Plan
24	A-3	Architectural Roof Plan
25	A-4	Architectural Elevations - 1
26	A-5	Architectural Elevations - 2
27	A-6	Architectural Detail - 1
28	A-7	Architectural Detail - 2
29	A-8	Architectural 3d Isometric - 1
30	A-9	Architectural 3d Isometric - 2
STRUCTURAL		
31	S-1	Structural Abbreviations & Notes
32	S-2	Structural Floor Plan
33	S-3	Structural Roof Framing Plan
34	S-4	Structural - Surge Tank Foundation Plan & Details
35	S-5	Structural Sections - 1
36	S-6	Structural Sections - 2
37	S-7	Structural Details - 1
38	S-8	Structural Details - 2
39	S-9	Structural Details - 3
40	S-10	Structural Details - 4
41	S-11	Structural Details - 5
42	S-12	Structural Details - 6
43	S-13	Structural 3d Isometric - 1
44	S-14	Structural 3d Isometric - 2
45	S-15	Structural 3d Isometric - 3
46	S-16	Backwash Pump Pads
MECHANICAL		
47	M-1	Mechanical Materials List & General Notes
48	M-2	Mechanical Floor Plan
49	M-3	Mechanical Sections - 1
50	M-4	Mechanical Sections - 2
51	M-5	Mechanical Sections - 3
52	M-6	Surge Tank(S) Plan
53	M-7	Surge Tank(S) Section And Details
54	M-8	Mechanical Details - 1
55	M-9	Mechanical Details - 2
56	M-10	Mechanical Details - 3
57	M-11	Mechanical Details - 4
58	M-12	Mechanical Details - 5
59	M-13	Mechanical Facilities Area Improvement Plan (Figure 6.11)
60	M-14	Mechanical Details - 3d Isometric - 1
61	M-15	Mechanical Details - 3d Isometric - 2
62	M-16	Mechanical Details - 3d Isometric - 3
Plumbing		
63	P-1	Building Drainage Plan
64	P-2	Restroom Plan And Sections
HVAC		
65	HVAC-1	Hvac Plan
66	HVAC-2	Hvac Schedule
67	HVAC-3	Hvac Details
ELECTRICAL		
68	E-1	Electrical Symbols & Abbreviations
69	E-2	Electrical Overall Site Plan
70	E-3	Electrical Enlarge Site Plan (Surge Tank(S))
71	E-4	Electrical Power Plan
72	E-5	Electrical Control And Signal Plan
73	E-6	Electrical Single Line Diagram
74	E-7	Electrical Panel Elevations
75	E-8	Electrical Cable And Conduit Schedule - 1
76	E-9	Electrical Cable And Conduit Schedule - 2
77	E-10	Electrical Grounding & Lighting Plan
78	E-11	Electrical Lighting Schedule
79	E-12	Electrical Details - 1
80	E-13	Electrical Details - 2
81	E-14	Control Schematic - Variable Speed Pumps
82	E-15	Control Schematic - Constant Speed Pumps
83	E-16	Control Schematic - Ventilation Fans
84	E-17	Plc Panel Layout
85	E-18	Control Panel Power Wiring - 1
86	E-19	Control Panel Power Wiring - 2
87	E-20	Control Panel I/O Wiring - 1
88	E-21	Control Panel I/O Wiring - 2
89	E-22	Control Panel I/O Wiring - 3
90	E-23	Control Panel I/O Wiring - 4
91	E-24	Control Panel I/O Wiring - 5
92	E-25	Control Panel I/O Wiring - 6
93	E-26	Control Panel I/O Wiring - 7
94	E-27	Control Panel I/O Wiring - 8
95	E-28	Control Panel I/O Wiring - 9
96	E-29	Control Panel I/O Wiring - 10
97	E-30	Control Panel I/O Wiring - 11
98	E-31	Control Panel I/O Wiring - 12
99	E-32	Ups Panel Power Distribution And Controls
100	E-33	Communication Equipment Details
101	E-34	Electrical Modifications Backwash Pumps
102	E-35	Interim Electrical Plans
103	E-36	Interim Electrical Single Line
INSTRUMENTATION		
104	I-1	Instrumentation Symbols & Abbreviations
105	I-2	Process Instrumentation Diagram - Domestic Water Pumps
106	I-3	Process Instrumentation Diagram - Recycled Water Pumps
107	I-4	Process Instrumentation Diagram - Pump Station General
108	I-5	Process Instrumentation Diagram - Surge Tank(S)
109	I-6	Process Instrumentation Diagram - Generator
110	I-7	Communication Block Diagram
111	I-8	Instrumentation Details - 1
112	I-9	Instrumentation Details - 2

2. TEAM

The proposed project team organization is shown below in **Exhibit 2-1** and identifies the roles and responsibilities of each of the key team members, as well as those of our subconsultant team members. A brief synopsis of key team members' experience follows. Detailed resumes for LEE + RO team members are included in **Appendix A.**

Exhibit 2-1
Organizational Chart



LICENSE/CERTIFICATION
Civil Engineer, CA #87036

EDUCATION
MS, Engineering Mechanics, University of Arizona

MS, Civil Engineering, University of Southern Illinois

BS, Civil Engineering, Jadavpur University

Amritendu Maji, PE | Project Manager

Amritendu Maji is a California-registered civil engineer and project manager with over 25 years of progressive experience in the planning, design, construction, and administration of public works projects. He has been responsible for preparing plans and specifications, construction cost estimates, bid documents, and permit applications for site development, roadways, water & wastewater conveyance, and distribution facilities, including pipelines, pump stations and reservoirs, and stormwater and flood control facilities. He has considerable experience in hydraulics and hydraulic modeling, as well as the preparation of feasibility studies and technical reports. He has provided constructability review and QA/QC of technical reports, plans & specifications, construction cost estimates, and other bid documents. He has provided construction administration and support services, including construction site visits, conducting progress meetings, review of shop drawings, responding to RFIs, analysis & preparation of change orders, start-up & commissioning, and review & approval of contractors' pay requests and project closeout. He also has considerable experience in the preparation of permits, including the Federal Section 404 (Clean Water Act) for work in wetlands, Section 408 (Rivers and Harbors Act) for federally constructed structures like levees and floodwalls, and permits from the State Transportation and Development offices for work in and around State and Federal Highways, etc.

Amritendu's Relevant Experience Includes:

- Orange Heights Zone 5 to 6 Domestic Water and Zone C+ to D Recycled Water Booster Pump Station Project, Irvine Ranch Water District
- Santiago Canyon Pump Station Improvements Project, Irvine Ranch Water District
- Prado Booster Station Upgrade Project, City of Colton
- Saddleback Pump Station Auxiliary Pump and Engine Replacement, Moulton Niguel Water District, Mission Viejo

LICENSE/CERTIFICATION
Engineer-In-Training #169413

NASSCO PACP AND MACP, #U-614-06021725

EDUCATION
BS, Civil Engineering, California State Polytechnic University, Pomona

David Tiscareno, EIT/PACP/MACP | Project Engineer / Project Coordinator

David is a Civil Engineer in Training specializing in water and wastewater projects, including pump station, pipeline, treatment plant, and reservoir projects. David has gained valuable experience over the last 8 years working on numerous small to large water and wastewater projects covering planning, design, and construction administration for design. His project experience includes the development of specifications and providing design support, preparation of hydraulic calculations, permit preparation, and coordination. Aside from design support experience, David has provided construction administration support, including assistance with RFPs, RFIs, submittals, and change orders. David is also a GIS expert. He holds NASSCO Pipeline Assessment Certification Program (PACP) and Manhole Assessment Certification Program (MACP) certifications. His construction management and inspection services project experience and responsibilities have included construction inspection, quality control, owner representation, field documentation, progress payment reviews, and permit coordination.

David's Relevant Experience Includes:

- Booster Pump Station 3501 Replacement, Coachella Valley Water District, Desert Hot Springs
- Santiago Canyon Pump Stations Improvements, Irvine Ranch Water District
- Potable Water Steel Reservoir Seismic Retrofits Project, Moulton Niguel Water District, Laguna Niguel
- Prado Booster Station Upgrade Project, City of Colton

LICENSE/CERTIFICATION
Civil Engineer, CA #C73790

EDUCATION
BS, Civil Engineering, California State Polytechnic University, Pomona

Adam Betsworth, PE | Civil Engineer

As a licensed professional engineer, Adam Betsworth has over 19 years of municipal civil, infrastructure, engineering, design, and construction experience in water and wastewater conveyance systems, as well as land development experience. He's worked with AutoCAD for more than 21 years and is an expert with Civil 3D. Adam's municipal work includes but is not limited to: potable and recycled water pipelines, wastewater treatment plants, lift stations, trunk sewers, potable and recycled water reservoirs, and booster pump stations. His work in land development covered commercial grading plans, street plans, sewer, water, recycled, and transmission lines, storm drain plans, channels, traffic control plans, tract maps, legal descriptions, and writing complex exhibits and reports. Adam has supervised and trained employees in various tasks and the use of Civil 3D. He has calculated and resolved complex mathematical/engineering problems and formulas to meet project specifications. He has presented project designs to clients, from concept to 3D model designs using Civil 3D in conjunction with product samples and presentation material.

Adam's Relevant Experience Includes:

- Orange Heights Zone 5 to 6 Domestic Water and Zone C+ to D Recycled Water Booster Pump Station Project, Irvine Ranch Water District
- Santiago Canyon Pump Station Improvements, Irvine Ranch Water District
- Catala Pump Station and Pipelines Planning & PDR, Santa Clarita Valley Water Agency
- Final Design for the Matthews/Romoland Booster Station, Eastern Municipal Water District

LICENSE/CERTIFICATION
Electrical Engineer
CA #E24462

EDUCATION
BS, Electrical Engineering, California State University, Fullerton

Jordan Lim, PE | Electrical & I&C Engineer

Jordan is a California-registered Electrical Engineer with 5 years of experience specializing in water and wastewater infrastructure projects, including pump stations, pipelines, treatment plants, and reservoir projects. Jordan has gained valuable experience working on numerous small to large water and wastewater projects covering planning, design, and construction administration. His project experience includes providing engineering and design support, development of specifications, development of control schematics, P&IDs, electrical analysis to conduct conductor pull and derating calculations, permit preparation, and discipline coordination. Jordan is skilled in engineering software, including AutoCAD, MicroStation, ETAP, and PullPlanner. Aside from his design support experience, Jordan has provided construction administration support, including assistance with RFPs, RFIs, submittals and change order requests.

Jordan's Relevant Experience Includes:

- Santiago Canyon Pump Station Improvements, Irvine Ranch Water District
- Saddleback Pump Station Auxiliary Pump and Engine Replacement and Portable Generator Connection Project, Moulton Niguel Water District, Aliso Viejo
- Prado Booster Station Upgrade Project, City of Colton
- Final Design for the Matthews/Romoland Booster Station, Eastern Municipal Water District.

LICENSE/CERTIFICATION
Structural Engineer, CA #S3023

Civil Engineer, CA #C34701

EDUCATION
BS, Civil Engineering (Structural Option), California State Polytechnic University, Pomona

Graduate Courses In Structural Dynamics & Advanced Structural Analysis, California State University, Los Angeles

James Gingrich, PE/SE | Structural Engineer

James Gingrich is a California registered structural engineer with over 32 years of structural analysis, James Gingrich is a California registered structural engineer with over 32 years of structural analysis, engineering, design, constructability analysis, value engineering, project coordination, and construction management experience. He has been the structural project manager, QA/QC reviewer, and lead structural engineer for planning, investigation and condition assessment, preparation of preliminary & final design, seismic analysis and upgrading, and construction phase engineering services for a wide variety of concrete and steel structures for water conveyance and pumping facilities, water storage, treatment, and distribution facility projects for Metropolitan Water District (MWD) of Southern California. His experience and expertise include rehabilitation & retrofit engineering & designs for existing facilities. His representative experience includes lead designer for the Lake Matthew Outlet Facilities, Colorado River Aqueduct Pumping Plant Seismic Upgrades, and Oxidation Retrofit (Ozone Disinfection) Projects for MWD's Mills Jensen, Weymouth, Skinner, and Diemer Water Treatment Plants.

James' Relevant Experience Includes:

- Booster Pump Station 3501 Replacement, Coachella Valley Water District
- Hyperion Secondary Effluent Pumping Station (HSEPS) Expansion Project, Hyperion Treatment Plant (HTP), West Basin Municipal Water District (WBMWD), Carson
- Seal Beach Pump Station Replacement, Orange County Sanitation District
- Pump Station 2 (PS 2) Reliability Improvements, City of San Diego.

LICENSE/CERTIFICATION
Engineer-in-Training #1661415

EDUCATION
BS, Civil Engineering California State University, Pomona

Samuel Song, EIT | Mechanical Design

Mr. Song is a Civil Engineer in Training with 8 years of experience specializing in water and wastewater projects, including pump stations, pipelines, treatment plants, and reservoir projects. Mr. Song has gained valuable experience working on numerous small to large water and wastewater projects covering planning, design, and construction administration. His project experience includes the development of specifications and providing design support, preparation of hydraulic calculations, and coordination. Mr. Song is skilled in engineering software, including AutoCAD, MicroStation, SAP2000, and AFT Fathom. Aside from his design support experience, Mr. Song has provided construction administration support, including assistance with RFPs, RFIs, submittals, and change orders.

Samuel's Relevant Experience Includes:

- Turtle Rock Zone 3 Reservoir Chloramine Booster Station, Irvine Ranch Water District
- Prado Booster Station Upgrade Project, City of Colton
- Saddleback Pump Station Auxiliary Pump and Engine Replacement, Moulton Niguel Water District, Mission Viejo
- Meridian Lift Station Replacement, San Bernardino Municipal Water District

LICENSE/CERTIFICATION
Civil Engineer, CA #C80535

NASSCO Pipeline Assessment Certification Program (PACP) #U-512-15438

EDUCATION
BS, Civil Engineering, California State University, Los Angeles

Charles Ro, PE | Technical Advisor and QA/QC *(Civil/Mechanical)*

Charles Ro has 20 years of highly diversified water and wastewater facility design and construction management experience. He has served as Principal-in-Charge, project manager, project engineer, construction manager and construction inspector for treatment plants, pump stations, storage reservoirs, and water mains and sewer projects. Charles has meaningful design experience with anaerobic digestion, gas handling, and dewatering; pump station; and odor control facilities. Charles has construction management and inspection experience with treatment plants, sewers and recycled water pipeline projects. Charles' field experience working on a variety of water and wastewater infrastructure projects lends a broad perspective on design and construction projects.

Charles' Relevant Experience Includes:

- Orange Heights Zone 5 to 6 Domestic Water and Zone C+ to D Recycled Water Booster Pump Station Project, Irvine Ranch Water District
- Prado Booster Station Upgrade Project, City of Colton
- Seal Beach Pumping Station Replacement, Orange County Sanitation District
- Parker Canyon Recycled Water Reservoir and Bourdet Pump Station, Walnut Valley Water District, Walnut CA

LICENSE/CERTIFICATION
Civil Engineer, CA #C80535

NASSCO Pipeline Assessment Certification Program (PACP) #U-512-15438

EDUCATION
BS, Civil Engineering, California State University, Los Angeles

Kenneth Creager, PE | Technical Advisor and QA/QC *(Electrical and I&C)*

Charles Ro has 20 years of highly diversified water and wastewater facility design and construction management experience. He has served as Principal-in-Charge, project manager, project engineer, construction manager and construction inspector for treatment plants, pump stations, storage reservoirs, and water mains and sewer projects. Charles has meaningful design experience with anaerobic digestion, gas handling, and dewatering; pump station; and odor control facilities. Charles has construction management and inspection experience with treatment plants, sewers and recycled water pipeline projects. Charles' field experience working on a variety of water and wastewater infrastructure projects lends a broad perspective on design and construction projects.

Charles' Relevant Experience Includes:

- Ely Booster Station Hazard Mitigation Project, Sonoma County Water Agency
- Electrical System Improvements at 7 Station Facilities, Moulton Niguel Water District, California
- Seal Beach Pumping Station Replacement, Orange County Sanitation District
- Replacement of Switchgear & MCC at Cajalco Intake Plant, West Municipal Water District

LICENSE/CERTIFICATION
Civil Engineer, CA #C70807

Electrical Engineer, CA #E18727

EDUCATION
BS, Aeronautical Engineering, University of California, Davis

Eric Lovering, PE | Principal-In-Charge

Eric Lovering has over 20 years of process mechanical/electrical/ instrumentation & controls (I&C) system engineering and project management experience with water and wastewater treatment plants, pump stations, industrial facilities, and standby power generation. He maintains two California PE licenses – "Civil" and "Electrical." Eric's core competencies include pump station hydraulics and pump selection, mechanical equipment, piping systems, and electrical & control systems engineering. His project experience includes system analysis, alternative studies, vendor selection, engineering, design, construction, PLC programming, start-up & commissioning, troubleshooting, and O&M consultation. Eric has hands-on experience with pumping equipment, diesel and gas-driven generators, variable frequency drives (VFDs), motor control centers, low-voltage and medium-voltage power distribution, and I&C systems. Eric's multidisciplinary experience makes him an effective project manager and multidiscipline engineering team leader. His communication skills keep clients well informed, and he effectively identifies critical path items that are required to drive the projects to successful completion. Eric is LEE + RO's Chief Engineer, and he often serves in the role of project lead technical advisor.

Eric's Relevant Experience Includes:

- Orange Heights Zone 5 to 6 Domestic Water and Zone C+ to D Recycled Water Booster Pump Station Project, Irvine Ranch Water District
- IIC East Zone A to B Booster Pump Station Upgrades, Irvine Ranch Water District
- Hidden Canyon Zone 3 to 4 Domestic Water and Zone B to C Recycled Water Booster Pump Station, Irvine Ranch Water District
- Turtle Rock Zone B+ Recycled Water System Upgrading Project, Irvine Ranch Water District

SUBCONSULTANT BIOGRAPHIES

For those services that LEE + RO does not self-perform, we have included the following sub-consultant team members.

Flow Science Inc. | Hydraulic Modeling and Surge Analysis

Flow Science, established in 1983, provides specialty-consulting services for problems involving fluid motion,transport, and water quality. Since its establishment, the firm has successfully completed more than 1,100 surge protection design projects. The firm has substantial experience in performing transient analyses for existing and new systems and in the preparation of design specifications for surge protection equipment. The firm combines practical field application experience with the mathematical expertise in the analysis of water hammer. Flow Science specializes in the hydraulic analysis of steady and unsteady flow in water and wastewater systems, including both open channel and closed pipeline flows. The firm has performed surge analyses on systems ranging from less than 1 to over 5,000 mgd for water agencies and municipalities throughout the U.S. Flow Science is a Small Business Enterprise.

Ninyo & Moore | Geotechnical

Ninyo & Moore, a certified MBE, has been headquartered in San Diego since 1986, and offers consulting services in all aspects of geotechnical engineering, engineering geology, and environmental sciences. Ninyo & Moore has offices throughout California, and in Arizona, Nevada, Colorado, Utah, and Texas. The firm is fully committed to being responsive, cost-efficient, and thorough in meeting its clients' project needs and objectives. The quality of Ninyo & Moore's personnel base has become widely recognized. . Ninyo & Moore will perform the required services from our San Diego Corporate office, which has 101 staff professionals.

The Prizm Group (TPG) | Surveying

The Prizm Group (TPG) | Surveying TPG was formed in 1998 with the corporate office in Norco, California. The background of the principal included design engineering and surveying of public works projects throughout Southern California. TPG provides surveying services to civil engineering companies and public agencies. By providing services to such entities TPG has participated in numerous projects for both private and public agencies, including cities and water districts such as Rancho California Water District, the cities of Corona, Azusa, Indio and Eastern Municipal Water District. TPG is regular subconsultant on LEE + RO projects.

Underground Solutions | Potholing

Underground Solutions, Inc. (USI) has been in the locating and vacuum excavation utility potholing service business since 2003. USI and their team of highly qualified operators and management are committed to perform fast, safe and accurate utility locating services. Their high velocity use of air-driven excavation delivers the power to cut precise holes into the earth without damaging the utility being located. Their "dry" system provides a more economical and environmentally friendly method of excavation.

AVAILABILITY

AVAILABILITY MATRIX

KEY PERSONNEL	ROLE	% OF TIME COMMITTED ON PROJECT	OFFICE LOCATION
Amritendu Maji, PE	Project Manager	65	City of Industry
David Tiscareno, EIT	Project Engineer/Project Coordinator	50	City of Industry
Adam Betsworth, PE	Civil Engineer	65	City of Industry
Jordan Lim, PE	Electrical/I&C Engineer	65	City of Industry
James Gingrich, PE	Structural Engineer	50	City of Industry
Samuel Song, EIT	Mechanical Design	50	City of Industry
Charles Ro, PE	Technical Advisor (QA/QC)	35	City of Industry
Kenneth Creager, PE	Technical Advisor (QA/QC)	10	City of Industry
Eric Lovering, PE	Principal in Charge	10	San Diego

3. EXPERIENCE

LEE+RO's representative and relevant projects are introduced below. Following these project descriptions, we have included a matrix **(Exhibit 3-1)** that lists many of our other domestic potable water and recycled water pump stations projects.

Project Description

Santiago Hills II Zone 5 to 6 Domestic Water and Zone C+ to D Recycled Water Booster Pump Station Project | Irvine Ranch Water District

LEE + RO to design the Santiago Hills II Domestic and Recycled Water Pump Station for a new 398-acre medium- and high-density residential development. In addition to designing the pump line up to meet IRWD's hydraulic demands, a key design feature was working with IRWD to develop the best way to layout the multiple facilities to be housed at Santiago Hills II; to transform the facility from a pump station site into a "campus." The domestic water pump station consists of four (4) 15 HP and two (2) 100 HP variable frequency drive pumps including standby pumps with combined total capacity 1,500 gpm and the recycled water pump station consists of four (4) 15HP variable frequency drive pumps with a combined total capacity of 1,300 gpm. Both stations have 5hp jockey pumps. The scope of work included hydraulic analysis and modeling, and PDR phase engineering services. This job was postponed after the issuance of the Preliminary Design Report. The project included perimeter wall and access, masonry building, mechanical equipment, and yard piping, and instrumentation and controls.

Client Reference:
Irvine Ranch Water District
Joel Nash, Project Manager
(949) 453-5869, nash@irwd.com

Cost: N/A - N/A – the project was postponed after issuance of PDR

Date Services Provided: June 2016

Santiago Canyon Pump Station Improvements | Irvine Ranch Water District

This project will increase pumping capacity at Manning, Read, Shaw, and Williams Pump Stations to meet the Tier 1 fire flows in their respective service zones to provide improved reliability and upgrade the facilities to current District standards. LEE + RO updated the existing hydraulic model for the Santiago Canyon area consisting of several pressure zones and ran the model for existing, interim, and buildout conditions for average day, max day plus fire flow, and peak hour scenarios. Global fire flow analyses were performed with and without the proposed pump station and future pipeline improvements. The model results were used not only to confirm and select the proposed pumps and pressure-reducing valves at the four pump stations, but also to confirm the master-planned pipeline improvements.

Client Reference:
Irvine Ranch Water District
Alex Murphy, Project Manager
(949) 453-5863, murphy@irwd.com

Cost: $4 Million

Date Services Provided: May 2019

IIC East Zone A to B Booster Pump Station Upgrades | Irvine Ranch Water District

LEE + RO provided preliminary design, final design, bid phase and engineering services during construction for this $2 million recycled water pump station upgrades project. The old existing IIC East Zone A to B Recycled Water Pump Station was equipped with four (4) vertical turbine pumps (three duty and one standby), with one spare pump can available to receive a future fifth pump. This upgrades project added additional pumping capacity (to 10,700 gpm) with a 5th pump and included all new pump motors, a new 1200A electrical utility service, new main switchboard, and new MCC, two new VFDs and three new soft starters, new instrumentation and controls, new 7.5 ton ac cooling unit, new LED lighting, new PLC controls, and networking equipment. A hydraulic transient analysis was performed to ensure that the Zone A and B pipelines had adequate surge protection during a pump power failure and/or startup of the booster pump station. Based on the surge study, installation of surge mitigation equipment was not necessary

Client Reference:
Irvine Ranch Water District
Scott Toland Now at Eastern Municipal Water Dist.
(951) 928-3766 X 4471, @ EMWD, tolands@emwd.org

Cost: $2 Million

Date Services Provided: May 2017

Project Description

Hidden Canyon Zone 3 to 4 Domestic Water & Zone B to C Recycled Water Booster Pump Station | Irvine Ranch Water District

LEE + RO provided engineering design services for this combined domestic water/fire flow and recycled water pump station facility for a new 255-acre medium- and high-density residential development. The $2.3 million domestic water pump station consists of four (4) 15 HP VFD driven vertical turbine pumps and two (2) 100 HP constant speed pumps, including standby pumps with a combined total capacity of 2,170 gpm and the $1.9 million recycled water pump station consists of four (4) 15 HP variable frequency drive pumps with a combined total capacity of 475 gpm.

Determining the most efficient site layout for this Domestic Water – Fire Flow – Recycled Water pump station required close coordination with IRWD's Engineering and Operations staff. The scope of work included hydraulic analysis and modeling, PDR, final design, and bid & construction phase engineering services. The project elements included a CMU masonry building, CMU perimeter walls with gated vehicular access, mechanical equipment and yard piping, and instrumentation and controls. The final design included the preparation of a Project Manual describing sequencing associated with connections and tie-ins to existing facilities, utility research, permit coordination, and all civil, structural, mechanical, HVAC, and architectural elements.

Client Reference:
Irvine Ranch Water District
Scott Toland (now at Eastern Municipal Water District)
(951) 928-3766 X 4471, @ EMWD, tolands@emwd.org

Cost: $4.2 Million

Date Services Provided: March 2014

Turtle Rock Zone 3 Reservoir Chloramine Booster Station | Irvine Ranch Water District

The Turtle Rock Zone 3 Reservoir (TR Z3 Res) is located at 13½ Minaret Drive in Irvine and supplies water to the surrounding Turtle Rock neighborhood and the Zone 3 to 4 Pump Station (TR Z4 PS) which serves the uppermost portion of the neighborhood. IRWD has experienced degraded water quality at the TR Z3 Res due to nitrification caused by the loss of chlorine residual, excess free ammonia and low water supply turnover. Currently, IRWD doses chlorine and ammonia at the Turtle Rock Zone 1 to 3 Pump Station to reduce nitrification in the system but this process is susceptible to chemical precipitation in the pipe where the chemical is injected and has required multiple replacements of the injection pipe. This project will install a chloramine booster station at TR Z3 Res similar to chloramine booster stations that are in service at multiple reservoirs throughout IRWD's potable system to address and avoid the nitrification and in-pipe chemical precipitation issues

Client Reference:
Irvine Ranch Water District
Alex Murphy, Project Manager
(949) 453-5863, murphy@irwd.com

Cost: $3.9 Million

Date Services Provided: March 2021

Michelson Water Recycling Plant Unit Substation T-1 Replacement | Irvine Ranch Water District

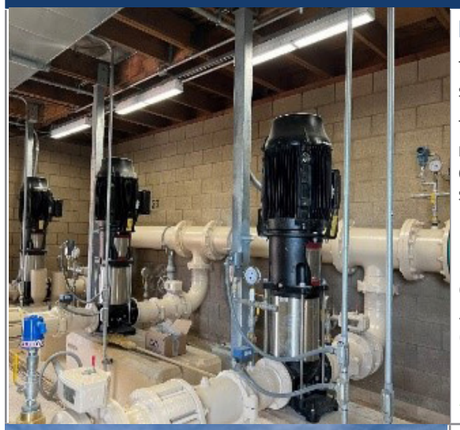
Unit Substation T-1 is comprised of two 5kV load breaks, a 1000kVA transformer, and multiple 480V distribution sections. The existing equipment shall be replaced in kind and at the same location to accommodate the existing conduits and conductors. The F1 and F2 feeders will be interrupted during construction, which will affect downstream Unit Substations T-2, T-9, T-3, and T-10 and/ the recently installed battery energy storage system (BESS). The 5kV power to the downstream unit substations and BESS shall be maintained during construction. Substation T-1 also distributes 480V power to DSB-200 and MCC-301, which provides power to critical treatment processes. The 480V power shall be maintained during the construction process without the extended use of temporary generators. A primary component of the Project will be the development of a construction phasing plan to ensure continuous, uninterrupted operation of MWRP during the construction period.

Client Reference:
Irvine Ranch Water District
Joel Nash, Project Manager
(949) 453-5569, @irwd.com

Cost: $3 Million

Date Services Provided: 2018

Project Description



Prado Booster Pump Station Upgrade Project | City of Colton

The City of Colton owns, operates, and maintains the Prado Booster Station. The existing potable water booster pump station housed two 75 HP horizontal split case centrifugal pumps with room for a third pump. The station also included electrical switchgear, motor starters, meter and main breakers, RTU, outdoor transformer, instrumentation and controls, propeller meter, and exposed piping.

The objective of this project was to provide redundancy by installing a new three-pump lineup and improve efficiency by installing variable frequency drives (VFDs) on each pump motor. The project elements included three new vertical pumps and motors with new Variable Frequency Drives (VFD); new piping, valving, instrumentation, and appurtenances; removing and replacing the existing MCC; all new electrical conduits and conductors; complete instrumentation and controls design; SCADA design for booster station remote monitoring system; new emergency generator transfer switch sized for new pump station electrical loads; new portable emergency generator connection; new station lighting; new HVAC system, pump station security system upgrades; replacement of skylights with functional roof hatches for pump/ motor removal. This project was completed in 2022 and is currently in service.

Client Reference:
City of Colton
Jess Soto, Project Manager
(909) 370-5065, jsoto@colton.ca.gov

Cost: $1.8 Million

Date Services Provided: August 2021

Booster Pump Station 3501 Replacement | Coachella Valley Water District

CVWD Booster Pump Station 3501 is located in Desert Hot Springs, CA. The station had reached the end of its useful life and the District had experienced capacity and supply issues in the high zone and desired a new pumping facility that would provide service through the year 2030.

The existing site included two above-ground steel reservoirs, six (6) vertical turbine pumps of various sizes that supply water to the Sky Valley Pressure Zone, a portable emergency generator, a surge tank, and connections to an existing lower pressure zone. The new $3.3 million booster pump station project included four (4) new 200 hp vertical turbine pumps with reduced voltage soft starts, instrumentation and controls, a new 1,200A electrical service and utility transformer, a new electrical building with HVAC to house the new switchboard, ATS, MCC and electrical panels and SCADA panel, a new chemical storage building, a new air compressor for the surge tank, a new 750kW stationary diesel-fueled emergency generator and load bank. New fill and drain piping (yard piping) were provided for the existing reservoirs to optimize the site layout and operations. New seismic valves were installed at the reservoir connections. The existing pump station remained online throughout the construction process and was not demolished until the new booster pump station was commissioned and fully operational.

Client Reference:
Coachella Valley Water District
Jesse Aguilar, Project Manager
(760) 398-2661 ext. 2511, jaguilar@cvwd.org

Cost: 3.3 Million

Date Services Provided: December 2017

Miramar Pump Station Rehabilitation and Upgrading Project | San Diego County Water Authority

LEE + RO provided engineering services for the rehabilitation and upgrade of the pump station's facilities to ensure that the pump station was fully operational - delivering up to 40 MGD to member agencies during emergency water disruptions, such as those caused by earthquakes. The station was placed into operation in 1979 and much of the pump station's 2.3 kV electrical system was obsolete and no longer supported by the original manufacturers. This upgrade project included a comprehensive condition assessment report, hydraulic and surge analysis, and structural seismic analysis. The scope of work for this $4.1 million project included civil, structural, mechanical, electrical and instrumentation & controls engineering for replacement of pumps, seismic reinforcement, forced air ventilation, conversion to a 4.16kV electrical distribution system and replacement of all electrical equipment, addition of automatic pump controls, and SCADA integration. The site is adjacent to a residential neighborhood, thus requiring special considerations for noise abatement designs and new perimeter fencing. The project also included a new flow control facility. The flow control facility consists of two triple offset isolation butterfly valves, a venturi meter, and a motorized cone valve to deliver metered water to the Miramar Treatment Plant clear wells.

Client Reference:
San Diego County Water Authority
Gary Olvera, Project Manager
(858) 522-6600, golvera@sdcwa.org

Cost: 4.1 Million

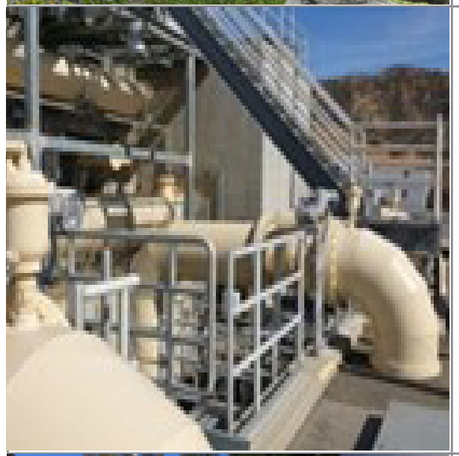
Date Services Provided: November 2015

Project Description

Catala Pump Station and Pipelines Planning & PDR | Santa Clarita Valley Water Agency

LEE + RO is providing engineering services for the evaluation of alternative siting locations and pipe routing along with final recommendations, preparation of a preliminary design report (PDR) and 30% preliminary design plans for the selected solution. Santa Clarita Valley Water Agency (SCV Water) seeks to construct a new potable water pump station including associated suction and force main piping to supply the Catala Pressure Zone from the Bouquet Pressure Zone. This Project is the highest priority supply project recommended in Santa Clarita Water Division's 2013 Water Master Plan to provide adequate capacity for expansion and future growth, increase operational flexibility, and increase system reliability. The suction pipeline will connect to an existing water main south of the intersection of Bouquet Canyon Road and Newhall Ranch Road. The discharge pipeline will connect to an existing Mesa Tank supply line further north on Bouquet Canyon Road.

Client Reference:
Santa Clarita Valley Water Agency
Jason Yim, Principal Engineer
(661) 513-1277, jyim@scvwa.org
Cost: 15 Million
Date Services Provided: January 2023



Earl Schmidt Filtration Plant Improvement, Washwater Return and Sludge System Improvements | Santa Clarita Valley Water Agency

SCVWA owns and operates the 56 MGD capacity Earl Schmidt Filtration Plant (ESFP) that treats State Project Water (SPW) from Castaic Lake. The main ESFP processes consist of an ozone injection system, ten contact clarifiers, ten filters, and two storage reservoirs. The flash mixing pumps mix water and coagulants and convey it to the contact clarifiers, followed by filtration through filters. Filtered water is disinfected with chlorine and flows by gravity to storage reservoirs before distribution. The washwater (WW) from the clarifiers and filters is stored in WW basins and pumped to the WW treatment facilities. Treated WW is returned to the head of the plant, and the collected solids are treated in a gravity sludge thickener, and, finally, in drying beds. The WW return system consists of two WW basins (400,000 gallons each), a chemical injection and inline mixer system, and two packaged treatment units (PTUs). There is one sludge thickener and two sludge drying beds. The supernatant in WW basins is pumped to the PTUs, and the settled sludge is conveyed to the sludge thickeners and drying beds.

The California Department of Public Health (DPH) Cryptosporidium Action Plan (CAP) includes a 2 nephelometric turbidity units (NTU) recycled water turbidity limit and also regulates the total recycle water flow to be less than 10% of the plant flow. The existing ESFP WW return system meets the 10% of recycle flow requirement; however, the current WW system limitations prevent maximizing the WW recycle flow up to 10 percent. In addition, the current washwater return system cannot consistently reduce turbidity in the return line to less than 2 NTU. LEE + RO evaluated the WW return and sludge handling system and identified the necessary washwater return system improvements to cost-effectively achieve full compliance with the DPH requirements.

The project includes the construction of two new 620,000-gallon capacity WW basins with automatic sludge scraper system and floating decanters, a WW basin effluent wet well, upsizing of various conveyance piping, a new sludge thickener, new sludge drying bed, electrical, and various site improvements. The total construction cost is $18 million. Construction is ongoing and will be completed in March 2024.

Client Reference:
Santa Clarita Valley Water Agency
Jason Yim, Principal Engineer
(661) 513-1277, jyim@scvwa.org
Cost: 18 Million
Date Services Provided: June 2015

Saddleback Pump Station Auxiliary Pump and Engine Replacement | Moulton Niguel Water District

The pump at the auxiliary pump station (Aux PS) at Moulton Niguel Water District's (District) Saddleback Pump Station and Reservoir facility is currently driven by a propane-fueled engine through a right-angled gear drive. The District desires to replace the existing engine a with new diesel-fueled engine, upgrade the gear drive with a new gear drive and upgrade the existing vertical t urbine pump to a new vertical turbine pump capable of delivering 4,740 gpm at a discharge head of 313 feet of Total Dynamic Head (TDH). The work will also include modifications to the existing building, piping and electrical system including site work. Also, a new portable generator connection will be provided at the Saddleback Pump Station building. The District is using the Preliminary Design Technical Memorandum (PDTM) prepared by LEE + RO as the basis of design for this project. The PDTM recommended this alternative and the pumping capacity. In addition to the pump, gear and engine replacements, additional work includes evaluation of existing engine structural foundation supports, evaluation of existing building structure for the installation of a roll up door to aid with future maintenance work, and piping modifications to tie in the recirculation line at the Aux PS to the reservoir.

Client Reference:
Moulton Niguel Water District
Bryan Hong, Senior Engineer
(949) 281-8269, bhong@mnwd.com
Cost: $149,953
Date Services Provided: May 2019

Pump Station 2 (PS2) Reliability and Force Main Surge Protection Upgrades | City of San Diego, CA

PS2, San Diego's largest pump station, was constructed in 1963, and conveys all wastewater flows from the San Diego Metro Wastewater System through two 87-inch diameter force mains and Point Loma Tunnel to the Point Loma Wastewater Treatment Plant (PLWTP). PS2 has a design capacity of 432 mgd and houses a total of eight (8) pumps: six are driven by 2,250 HP electric motors, and two others are driven by 2,500 HP natural gas engines. PS2 currently has three feeds from SDG&E. However, the present setup does not meet the EPA Class I Reliability Criteria and major sewage spills could occur at PS2. LEE + RO evaluated many alternatives employing turbines and/or engine generators. The project also included force main hydraulic study and mitigation of hydraulic surge on the dual force mains to the PLWTP. The selected alternative in the final design includes: (1) replace two engine driven pumps with two 2,250 HP motors driven through new VFDs, (2) install two natural gas engine generators rated at 3,000 kW each, which will be available to pumps at all times for force main surge protection during multiple pump operation, and (3) install two 4,000 kW diesel engine emergency generators. The project includes an 8,000 sq. ft. and 45 ft. high building to house the generators, cooling systems, electrical , and cranes. The existing raw sewage shell and tube exchangers will be modified and retained as a part of the engine cooling system.

Client Reference:
City of San Diego, CA
Ivan Hoffman, Project Manager
(619) 533-5196, ihoffman@sandiego.gov
Cost: 56 Million
Date Services Provided: May 2016

Exhibit 5-1: Fee Estimate

Labor Category: E8 Managing Engineer; E7 Supervising Engineer;E5 Senior Engineer; E4 Engineer; E3 Associate Engineer; E2 Assistant Engineer; T4 Designer; T2 Assistant Designer; A1 Administrative Assistant/Word Processor	E8	E7	E5	E4	E3	E2	T4	T2	A1	Total Hours	Total Labor	Other Direct Costs	Sub-Consultant Fees	TOTAL
Project Tasks	$317	$284	$213	$187	$177	$131	$163	$121	$95					
Task 1 Project Management														
A. Preparation of Project Status		12	52							64	$14,484			$14,484
B. Meetings and Workshops	8	42	42		42					134	$30,844	$600		$31,444
C. Quality Assurance/Quality Control	60		30				8		8	106	$27,474			$27,474
Subtotal Task 1, Project Management	**68**	**54**	**124**	**0**	**42**	**0**	**8**	**0**	**8**	**304**	**$72,802**	**$600**	**$0**	**$73,402**
Task 2 Preliminary Design Report Validation Memorandum														
- Validtion Memorandum (Including 30% 3D Drawings/ Modeling)	40	80	80	160		8	120	60	4	552	$110,608	$250		$110,858
A. Surge Study - Pressure Surge Analysis of Zone C+ to E Pump Station and Recycled Water System	8					8			4	20	$3,964		$18,300	$22,264
B. Geotechnical Investigation	2					8			4	14	$2,062		$38,735	$40,797
C. Surveying Services	2					8			4	14	$2,062		$4,320	$6,382
D. Hydraulic Model	40				16					56	$15,512		$0	$15,512
E. Additional Facility Evaluations. ($25K - Potholing Budget)	4			20	38		30	8		100	$17,592	$23	$7,385	$25,000
Subtotal Task 2, Preliminary Design Report Validation Memorandum	**96**	**80**	**80**	**180**	**54**	**32**	**150**	**68**	**16**	**756**	**$151,800**	**$273**	**$68,740**	**$220,813**
Task 3: Final Design														
A. Project Manual	4	12	16	8	40				40	120	$20,460			$20,460
B. Construction Plans (Fees included in Task 3.G.)														
C. Electrical/Instrumentation (Fees included in Task 3.G.)														
D. SCE Final Service Plan	4		40				8			52	$11,092	$150		$11,242
E. Project Schedule		12				8				20	$4,456			$4,456
F. Opinion of Probable Construction Cost		4	4	4	4	60				76	$11,304			$11,304
G. Design Deliverables														
3.G.1 60% Deliverable	50	80	200	80	250	90	120	150	16	1036	$191,400	$150		$191,550
3.G.2 90% Deliverable	32	60	160	60	200	60	120	100	16	808	$148,924	$150		$149,074
3.G.3 100% Deliverable	12	30	80	40	200	40	50	50	8	510	$92,444	$150		$92,594
3.G.4 Final Design Deliverable	8	10	20	20	40	20	20	20	4	162	$29,136	$150		$29,286
H. Addenda Preparation and Pre-Bid Meeting										0	$0			$0
3.H.1 Plan Revisions (25 hrs)	1			15			9			25	$4,589			$4,589
3.H.2 Specification Revisions (10 hrs)	1		1	8						10	$2,026			$2,026
3.H.3 Bidder Questions (40 hrs)	2	4	4	30						40	$8,232			$8,232
3.H.4 Pre-Bid Meeting			6		6					12	$2,340	$150		$2,490
Subtotal Task 3, Final Design	**114**	**212**	**531**	**265**	**740**	**278**	**327**	**320**	**84**	**2871**	**$526,403**	**$900**	**$0**	**$527,303**
Without Optional Task	278	346	735	445	836	310	485	388	108	3,931	$751,005	$1,773	$68,740	$821,518
Optional Task														
2.A Surge Study - Pressure Surge Analysis of Zone 5 to 6 Pump Station and Domestic Water System	2					8			4	14	$2,062		$13,180	$15,242
With Optional Task	280	346	735	445	836	318	485	388	112	3,945	$753,067	$1,773	$81,920	$836,760