

AGENDA  
 IRVINE RANCH WATER DISTRICT  
 ENGINEERING AND OPERATIONS COMMITTEE MEETING  
 TUESDAY, SEPTEMBER 19, 2023

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=m7eeea55fc4330092bfc5d21c4d62fe0b>  
 Meeting Number (Access Code): 2483 578 3223  
 Meeting password: zj8V298ZQM

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 (Alt.):      John Withers                      \_\_\_\_\_

ALSO PRESENT      Paul Cook                      \_\_\_\_\_      Kevin Burton                      \_\_\_\_\_      Wendy Chambers      \_\_\_\_\_  
                                  Jose Zepeda                      \_\_\_\_\_      Paul Weghorst                      \_\_\_\_\_      Jim Colston                      \_\_\_\_\_  
                                  Steve Choi                      \_\_\_\_\_      Eric Akiyoshi                      \_\_\_\_\_      Fiona Sanchez                      \_\_\_\_\_  
                                  Rich Mori                      \_\_\_\_\_      Malcolm Cortez                      \_\_\_\_\_      Jacob Moeder                      \_\_\_\_\_  
                                  Ken Pfister                      \_\_\_\_\_      Alex Murphy                      \_\_\_\_\_      Harry Cho                      \_\_\_\_\_  
                                  \_\_\_\_\_                      \_\_\_\_\_      \_\_\_\_\_                      \_\_\_\_\_      \_\_\_\_\_                      \_\_\_\_\_

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](mailto:comments@irwd.com) before 9:00 a.m. on Tuesday, September 19, 2023.

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## COMMUNICATIONS

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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.

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## INFORMATION

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4. RESEARCH BUSINESS PLAN UPDATE – COLSTON / BURTON

Recommendation: Receive and file.

5. LAKE FOREST WOODS SEWER IMPROVEMENTS DESIGN UPDATE – CORTEZ / BURTON

Recommendation: Receive and file.

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## ACTION

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6. REIMBURSEMENT AGREEMENT BETWEEN THE CITY OF LAKE FOREST AND IRWD FOR THE INSTALLATION OF MISCELLANEOUS FACILITIES – RIOS / AKIYOSHI / BURTON

Recommendation: That the Board authorize the General Manager to execute a Reimbursement Agreement subject to non-substantive changes between the City of Lake Forest and IRWD for the installation of miscellaneous facilities.

7. MICHELSON WATER RECYCLING PLANT BIOSOLIDS LIFT STATION AND SEWER PIPELINE CONSULTANT SELECTION – MAI / CORTEZ / BURTON

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Tetra Tech in the amount of \$364,000 to provide engineering design services for the Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline, Project 12541.

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**OTHER BUSINESS**

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- 8. Directors' Comments
  
- 9. Adjournment

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

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September 19, 2023  
Prepared by: J. Colston  
Submitted by: J. Colston / K. Burton  
Approved by: Paul A. Cook 

## ENGINEERING AND OPERATIONS COMMITTEE

### RESEARCH BUSINESS PLAN UPDATE

#### SUMMARY:

Staff will provide an update on the research projects in which IRWD is currently involved.

#### BACKGROUND:

Periodically IRWD receives requests to participate in various research projects pertaining to emerging technologies through either direct funding or dedication of in-kind staff resources. Guidelines were developed to assist staff with their evaluation and response to those requests. These guidelines were incorporated into the IRWD Research Business Plan, which also provides a tracking mechanism for the various requests and ongoing research projects and programs in which IRWD participates. The underlying purpose of the Research Business Plan is to ensure that IRWD's research resources are being prioritized and utilized effectively.

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. IRWD actively participates in the Technology Approval Group (TAG) sponsored by Isle Utilities. The TAG hosts numerous developing technology providers in order to match interested agencies with their technologies. A status update on the current research projects is attached as Exhibit "A".

Changes since the last quarterly report:

- UCI CDC Sponsored PFAS Epidemiological Study: UCI is conducting a Centers for Disease Control (CDC) sponsored study of health impacts from the public drinking potable water tainted with Per- and Poly-fluoroalkyl substances (PFAS). Due to localized PFAS contamination in some Orange County drinking water sources, the CDC is sponsoring research to determine potential public health effects. IRWD's Irvine service area is seen as an ideal control population due to the lack of PFAS in IRWD's served potable water. UCI has begun to recruit additional participants in the IRWD service area including a number of IRWD employees who have already participated in the study during this last quarter.
- Biosolids Pellets Land Application Crop Study: UC Riverside researchers are now testing the soil and crops for 44 different organic chemicals. The crops include radish, spinach, broccoli as well as peach, apple and avocado trees. While the analyses have begun, some crops will not be harvested until April of 2024 (avocados). Researchers have scheduled an update on the research with IRWD staff. Staff will provide an update during the next quarterly update.

- Ammonia Monitoring at MWRP: On a recurring basis, Recycling Water Operations will request discrete hourly monitoring for ammonia from the wastewater treatment process in order to optimize treatment. Water Quality, Regulatory Compliance, and Recycled Water Operations plan to test ammonia sensors to determine if more accurate and less time intensive monitoring may be completed via these sensors. Operations is currently working to install the test equipment at MWRP. Staff expects to report results by the first quarter of 2024.
- Unaffiliated Breast Cancer Research: IRWD is not directly involved in this research, but researchers have provided IRWD staff with a preview of data developed in the research. A manuscript for this research has not yet been developed. Researchers with UC Davis have been looking for effects from sources of water on community breast cancer rates in women. Sources of potable water include IRWD, bottled water, East Bay Municipal Utility District, City of Los Angeles, City of Merced, City of Madera, San Mateo/Bayshore via California Water Services, Weaverville Community Services District, and Yurok Tribal Land.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – Research Projects Summary Table


## Exhibit "A"

### Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date	Comments/Next Steps
1	UCI Industry-University Research Center-Perfluorinated Compound Sources and Loading at Wastewater Treatment Plants-A Sewershed-Scale Analysis	This project will develop and implement methodology for sewershed analysis to identify raw wastewater sources of PFAS.	Weghorst/ Colston	UCI Industry-University Research Center	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis. Also providing automated sampling equipment.	Sep-20	Dec-23	Wastewater collection from sub-sewershed locations in Orange County has commenced and is expected to finish by the first half of 2023. UCI is currently recruiting volunteer households to complete sampling to identify major sources of PFAS from residences. Initial residential sampling indicate household contributions from toilets, laundry, showers and bathroom sinks.
2	Biosolids Pellets Land Application Crop Study	The primary goal is to determine if ~40-50 of the roughly 400 unregulated organic contaminants listed in the 'EPA contaminants in biosolids database' can be found in, or remain in, the edible portions of food and feed crops following land application at standard agronomic rates based on the nitrogen needs of the test crop.	Zepeda	UC Riverside/South Coast Research and Education Center in Irvine with funding by USEPA	Field study with laboratory analysis of biosolids and crops	Provide Class A biosolids pellets (approximately 1-2 tons of material)	Apr-22	Jul-24	UC Riverside researchers are now testing the soil and crops for 44 different organic chemicals. The crops include radish, spinach, broccoli as well as peach, apple and avocado trees. While the analyses have begun, some crops will not be harvested until April of 2024 (avocados). Researchers have scheduled a review with IRWD of current results. Staff will provide an update during the next quarterly update.
3	Ammonia Monitoring at MWRP	Recycling Water Operations requires discrete hourly monitoring for ammonia from the wastewater treatment processes in order to optimize treatment. WQ&RC plans to test ammonia sensors to determine if more accurate and less time intensive monitoring may be completed via these sensors.	Colston	IRWD	Field demonstration of new equipment	Staff time to set-up, maintain and monitor the ammonia sensors.	Mar-23	Mar-24	On a recurring basis, Recycling Water Operations will request discrete hourly monitoring for ammonia from the wastewater treatment process in order to optimize treatment. WQ&RC and Recycled Water Operations plan to test ammonia sensors to determine if more accurate and less time intensive monitoring may be completed via these sensors.
4	UCI CDC Sponsored PFAS Epidemiological Study	UCI is conducting a Centers for Disease Control (CDC) sponsored study of health impacts from the public drinking potable water. Due to localized PFAS contamination in some Orange County drinking water sources, the CDC is sponsoring research to determine potential public health effects. IRWD's Irvine service area is seen as an ideal control population due to the lack of PFAS in IRWD's served potable water.	Colston	UCI, OCWD, IRWD, CDC	Epidemiological that seeks 1,000 adults and 300 children for blood serum level testing.	Assistance in determining historic sources of drinking water in IRWD's service area.	Jan-23	TBD	IRWD staff including Jim Colston, Ken Pfister, and John Fabris met with staff from OCWD (Jason Dadakis and Gina Ayala) and UCI (Dr. Steve Bartell) to discuss IRWD's participation in the ongoing study. All parties agreed to IRWD's participation. IRWD agreed to provide information about historic water sources, and UCI agreed to coordinate with IRWD staff on the results of the study for public outreach.

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September 19, 2023  
Prepared by: M. Cortez  
Submitted by: K. Burton  
Approved by: Paul A. Cook 

## ENGINEERING AND OPERATIONS COMMITTEE

### LAKE FOREST WOODS SEWER IMPROVEMENTS DESIGN UPDATE

#### SUMMARY:

The Lake Forest Woods Sewer Improvements will replace and relocate segments of the existing IRWD sewer system, install streambed improvements within the San Diego and Glenwood Creeks (where the sewer facilities are in the Lake Forest Woods community), and construct access improvements. The sewer and streambed improvements are designed to reduce the risk of damage to IRWD sewer facilities from erosion from storm events. Staff will provide a presentation summarizing the current design, the additional streambed improvements that have recently been added, and coordination efforts with the Lake Forest Woods Homeowners Associations (HOAs).

#### BACKGROUND:

This project is located within the Lake Forest neighborhood known as “The Woods,” which is bounded by Lake Forest Drive, Toledo Way, Ridge Route, and Jeronimo Road, as shown in Exhibit “A”. This project will replace and relocate portions of IRWD’s Lake Forest Woods Sewer system located within the San Diego Creek and Glenwood Creek channels to reduce the risk of sewer pipe failure from erosion. The existing sewer system in this area was constructed in 1971 when it was common practice to construct gravity sewers parallel to creeks. Since the initial construction, significant erosion has taken place in the creek bed reducing the amount of cover over the existing sewer pipes in the creek to less than one foot in some locations, and erosion of the creek banks has now encroached into the HOAs’ walking paths adjacent to the creek. In some areas, the sewer pipe has been exposed by scour and several of the manholes are inaccessible due to their locations within the heavily eroded creek channel.

IRWD had previously relocated a short segment of sewer to move it out of the creek. In February 2023, emergency rip rap protection measures were installed to protect a manhole and the associated pipeline, which were exposed by recent storm events. A more comprehensive improvement project is now required to protect the sewer system over the long term and avoid more frequent emergency repairs and potential sewer spills.

#### Proposed Improvements:

The original design scope for the project involved:

- Replacing the existing sewer pipe with the highest risk of failure and least remaining cover with new sewer segments located outside of the scour envelope of the creek,
- Eliminating sewer crossings of the creek where possible,
- Installing check dams in the Glenwood Creek, and
- Improving access roads to the existing sewer facilities for maintenance purposes.

Staff recently modified the design scope to add six additional check dams to slow storm runoff flow velocities within the upper reach of the San Diego Creek. Slowing the storm runoff flow velocity has several benefits: 1) the reduction of erosion and consequently providing a measure of protection for both existing and new sewer facilities, 2) the preservation of the HOAs' property by reducing creek bank erosion, and 3) the elimination of approximately 500 linear feet of replacement sewer and reducing the construction cost. Staff will review the pros and cons of the addition of streambed improvements to the upper San Diego Creek using a presentation provided as Exhibit "B".

FISCAL IMPACTS:

Project 11123 is included in the Fiscal Year 2023-24 Capital Budget, and the budget is sufficient to complete the design of the project.

ENVIRONMENTAL COMPLIANCE:

The project is subject to the California Environmental Quality Act (CEQA). An Initial Study/Mitigated Negative Declaration (IS/MND) is being prepared in conformance with CEQA, California Code of Regulations Title 14, Chapter 3, Article 6, Section 15070.

RECOMMENDATION:

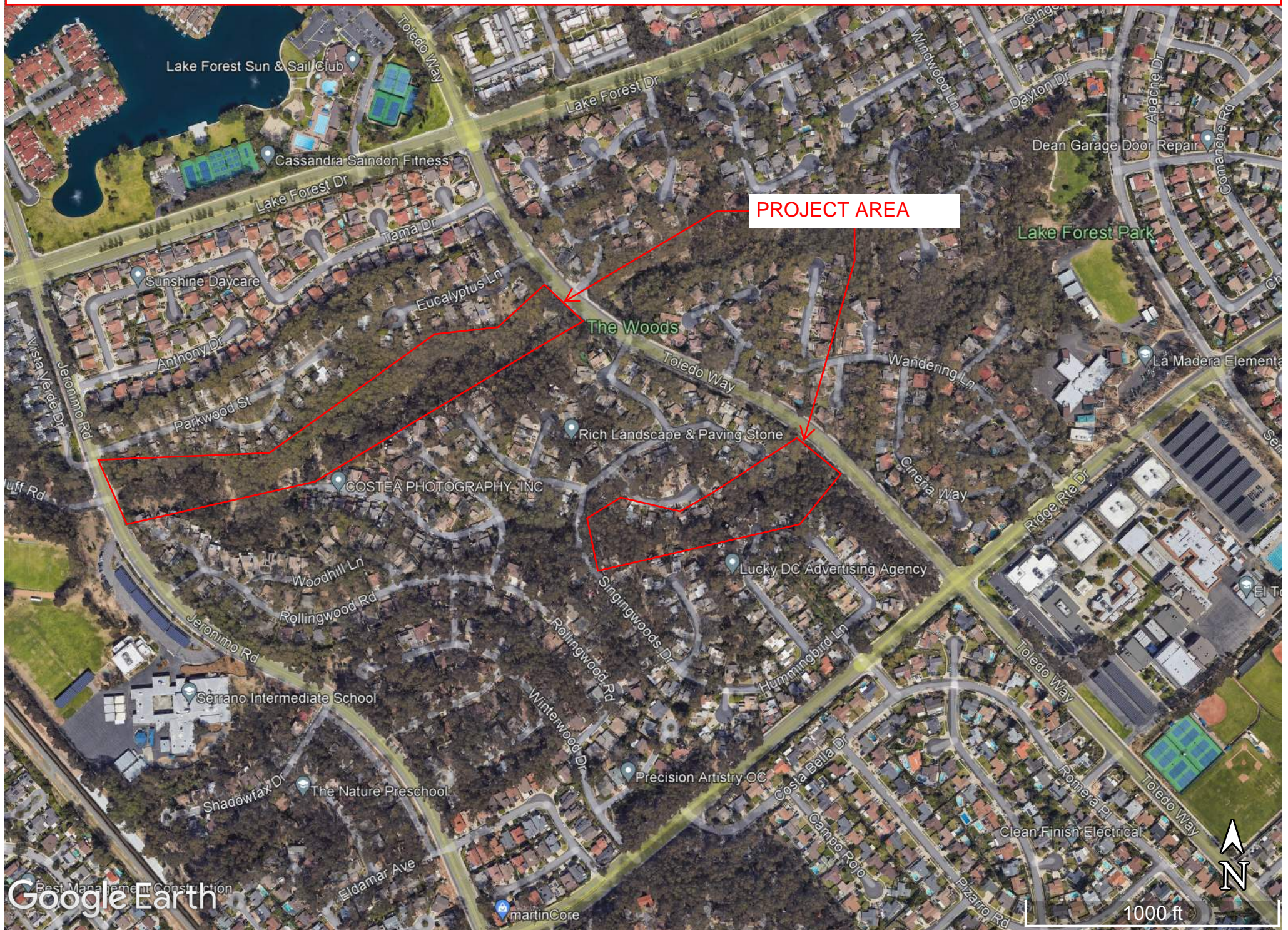
Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Location Map

Exhibit "B" – Lake Forest Woods Sewer Improvements Design Update Presentation

EXHIBIT A: LAKE FOREST WOODS LOCATION MAP



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# Exhibit "B"



## LAKE FOREST WOODS SEWER IMPROVEMENTS DESIGN UPDATE

ENGINEERING AND OPERATIONS COMMITTEE  
SEPTEMBER 19, 2023

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### TOPICS OF DISCUSSION

- Project Goals
- Proposed Improvements
- Agreements and Easements
- Next Steps



Irvine Ranch  
Water District



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## PROJECT GOALS:

1. Protect IRWD sewer infrastructure from damage by erosion by relocating it out of the scour envelope.
2. Improve maintenance access to sewer facilities by improving existing access routes and adding new access roads where needed.
3. Implement cost effective watershed improvements to protect IRWD sewer facilities where relocation is not possible

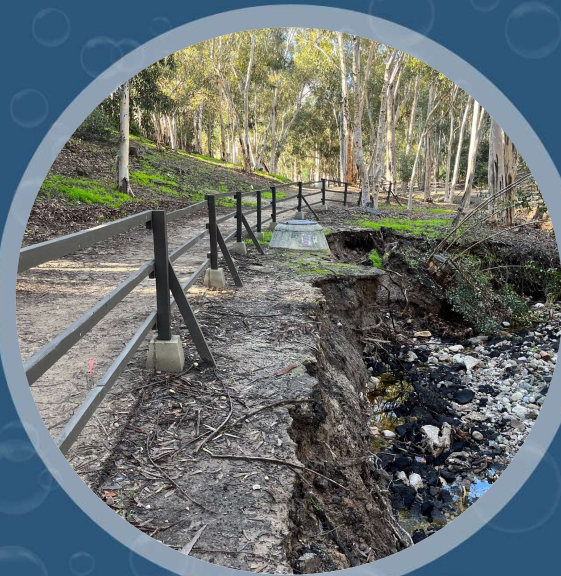


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## PROPOSED SEWER IMPROVEMENTS

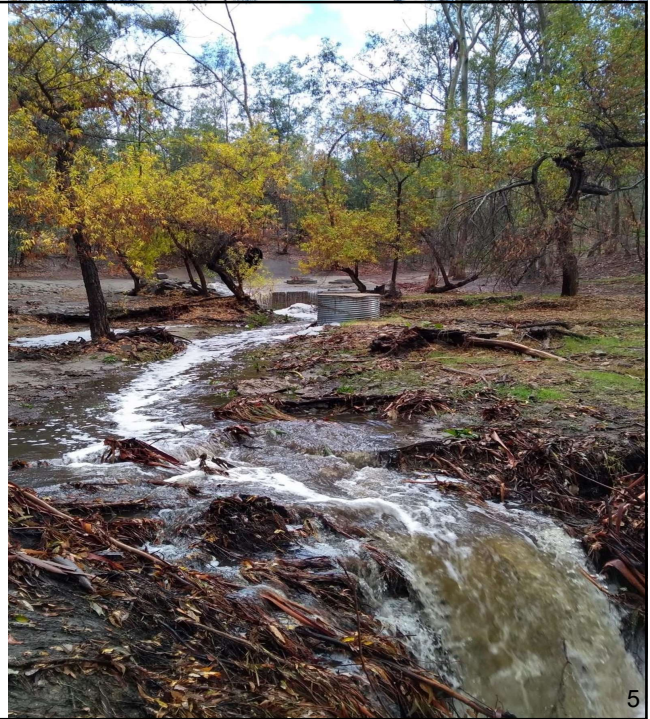


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## LAKE FOREST WOODS EXISTING SEWER SYSTEM

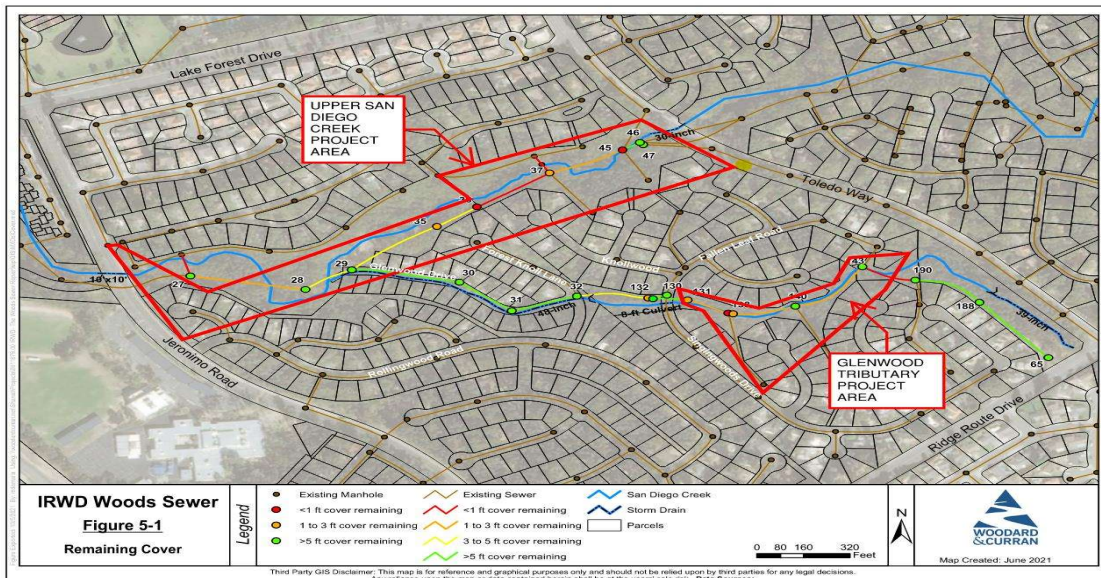
- Lake Forest Woods Community was constructed in 1971
- Sewer was constructed within Upper San Diego Creek and Glenwood tributary by Los Alisos Water District
- Since the original construction erosion has reduced cover to less than one foot in some locations
- Property is owned by the Lake Forest Woods Community Associations (I & II)
- No County or City stormwater improvements or maintenance between Toledo and Jeronimo



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## LAKE FOREST WOODS PROJECT LOCATION MAP & EXISTING SEWER



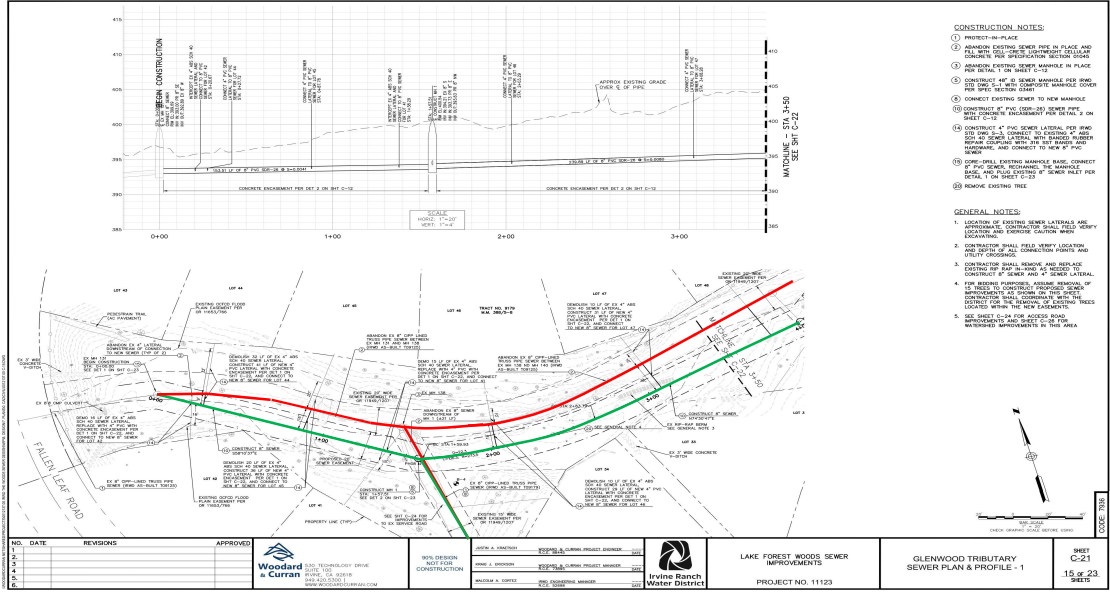
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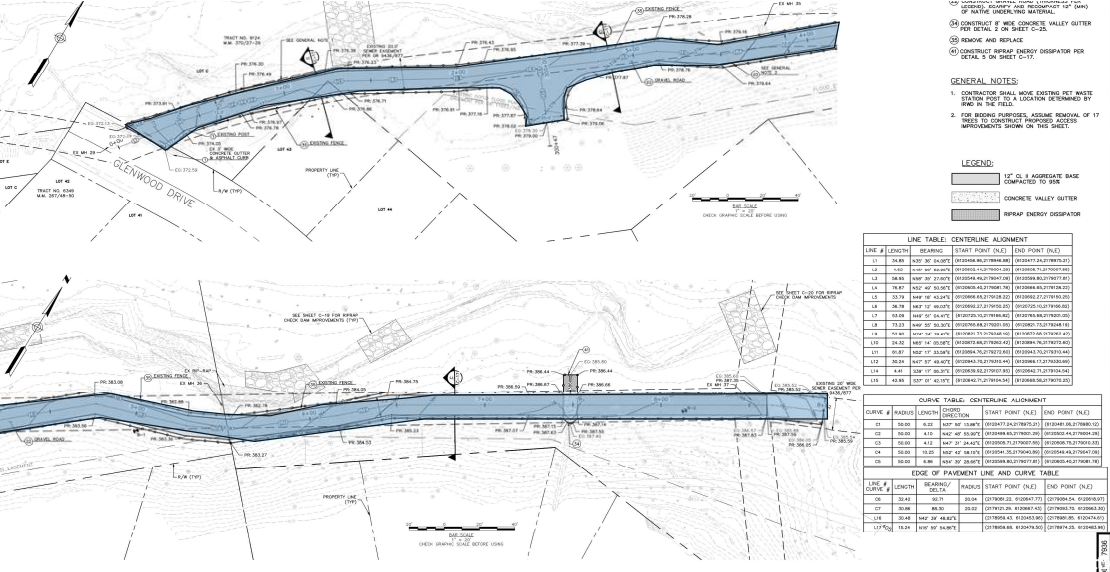


# SEWER RELOCATION GLENWOOD CREEK

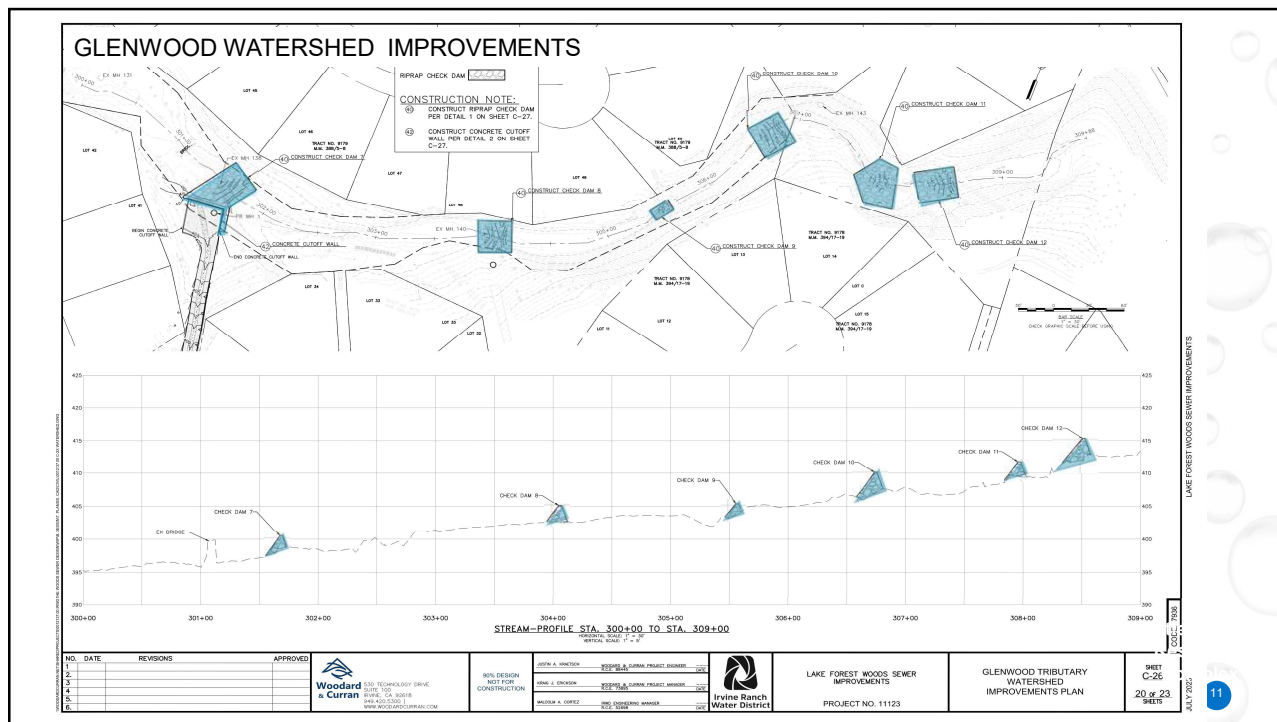


NO. DATE REVISIONS APPROVED	<b>Woodard &amp; Curran</b> 330 TECHNOLOGY DRIVE SANTA ANA, CA 92705 WWW.WOODARD-CURRAN.COM	90% DESIGN NOT FOR CONSTRUCTION	JAMES A. WATKINS PROJECT MANAGER	IRVINE RANCH WATER DISTRICT	LAKE FOREST WOODS SEWER IMPROVEMENTS PROJECT NO. 11123	GLENWOOD TRIBUTARY SEWER PLAN & PROFILE - 1	SHEET C-21 15 of 23 SHEETS
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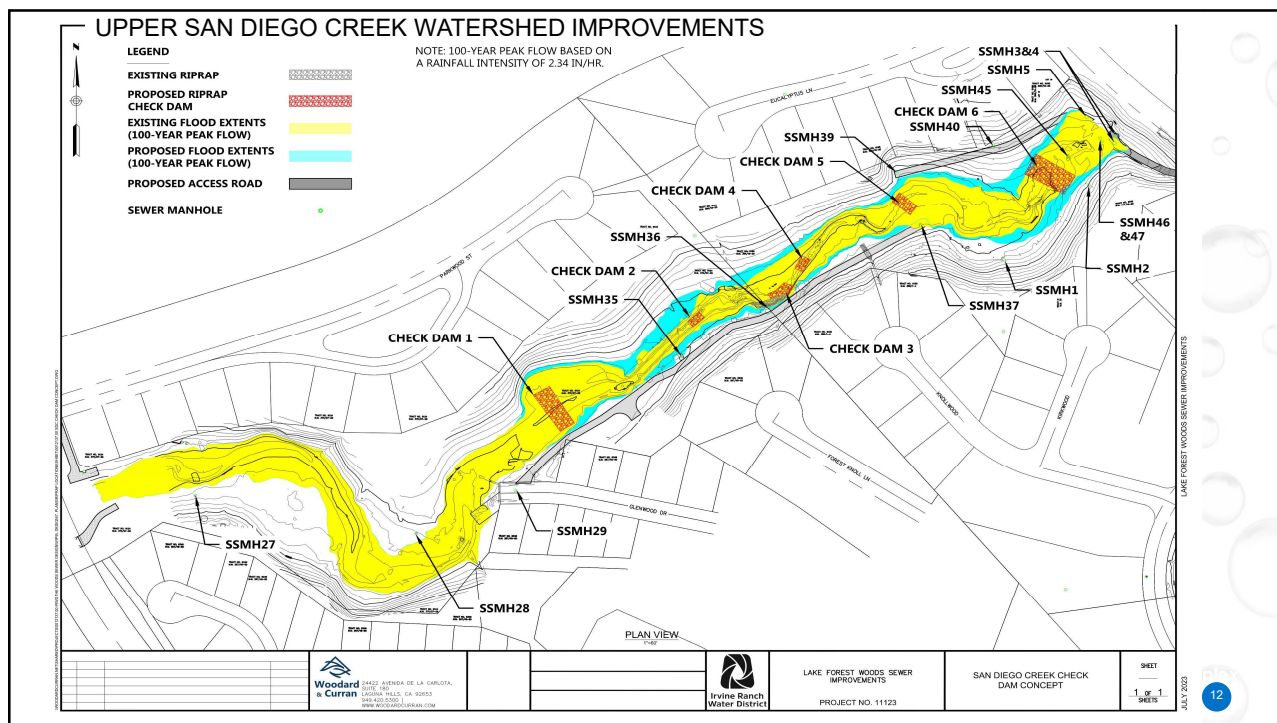
# ACCESS IMPROVEMENTS: IMPROVING EXISTING ACCESS ROAD



NO. DATE REVISIONS APPROVED	<b>Woodard &amp; Curran</b> 330 TECHNOLOGY DRIVE SANTA ANA, CA 92705 WWW.WOODARD-CURRAN.COM	90% DESIGN NOT FOR CONSTRUCTION	JAMES A. WATKINS PROJECT MANAGER	IRVINE RANCH WATER DISTRICT	LAKE FOREST WOODS SEWER IMPROVEMENTS PROJECT NO. 11123	UPPER SAN DIEGO CREEK ACCESS IMPROVEMENTS - GRADING & SURFACING 1	SHEET C-15 9 of 23 SHEETS
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## CHECK DAM DESIGN

- Reduces water velocity
- Prevents erosion
- Constructed with large rip rap rock
- Low flows stay in the center of structure
- Higher flows flow across the entire structure



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## BENEFITS OF WATERSHED IMPROVEMENTS

- Reduces risk to existing and new sewer infrastructure
- Reduces sewer replacement scope
- Cost savings over sewer replacement only
- Benefits the community by reducing future erosion risk to HOA trails along the creek



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# AGREEMENTS AND EASEMENTS

## IRWD AGREEMENTS AND EASEMENTS

- Agreement covering watershed improvements
- Temporary Construction Easement
- Blanket Access & Maintenance Easement
- Standard Pipeline Easements



 LAKE FOREST WOODS SEWER IMPROVEMENTS  
TCE & ACCESS EASEMENTS TO IRWD

## AGREEMENT

- Establishes HOA maintenance responsibility for watershed improvements
- Typical maintenance activities include removal of large debris, trash and leaves from check dams
- IRWD will not be responsible for replacement of approximately 131 trees that will be removed during construction of improvements, except where required for permitting



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## EASEMENTS

### Temporary Construction Easement:

- Permits IRWD to be on HOA property to construct the proposed improvements
- 16-month construction period
- 12 -13 months of actual construction
- Estimated construction start date of March 2024
- Actual start date depends on permit approval

### Blanket Access & Pipeline Easements:

- Provides permanent access to the entire creek area to maintain sewer facilities outside typical 20-foot-wide sewer easement
- HOA will also provide sewer pipeline easements for all relocated pipelines at no cost

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## HOA RESPONSES

### Lake Forest I HOA:

- HOA Board indicated they are in favor of approval of the proposed watershed improvements and agreements provided that the check dam maintenance is limited to manual removal of debris.
- HOA Board also indicated they will have some minor comments on the easement language.

### Lake Forest II HOA:

- HOA Board indicated they are amenable to the project.
- It expressed concern for potential for sewer spill(s) during the project and contamination from the proposed sewer abandonments.
- HOA Board requested engineering calculations and environmental clearance for the check dams, along with minor edits to the easements and maintenance language in the agreement.



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## NEXT STEPS

- Submit CEQA Initial Study/Mitigated Negative Declaration
- Submit Army Corp and California Department of Fish and Wildlife Permit applications
- Final Execution of the Agreements with HOA
- Permit Approval
- Finalize plans and advertise the project for construction bidding



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**THANK  
YOU!**



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September 19, 2023  
Prepared by: B. Rios / E. Akiyoshi  
Submitted by: K. Burton  
Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

REIMBURSEMENT AGREEMENT BETWEEN THE CITY OF LAKE FOREST AND IRWD  
FOR THE INSTALLATION OF MISCELLANEOUS FACILITIES

SUMMARY:

The City of Lake Forest periodically undertakes street improvement projects, most of which require concurrent construction, modification, and/or relocation of IRWD's domestic water, sanitary sewer and/or recycled water facilities within the project limits. Staff recommends that the Board authorize the General Manager to execute a Reimbursement Agreement subject to non-substantive changes between the City and IRWD for the Installation of Miscellaneous Facilities.

BACKGROUND:

In December 2012, the City and IRWD executed an agreement to reimburse work on IRWD facilities related to City street improvement projects. Under the existing agreement, work estimated at less than \$100,000 may be reimbursed through addendums to the master agreement. Over the past decade, the City and IRWD have successfully executed dozens of addenda to the agreement to cover many street improvement projects and have benefited from keeping the street and IRWD facility work with the same contractor (e.g., avoided additional mobilization costs and scheduling conflicts). Due to rising construction, labor, and materials costs, the City and IRWD have agreed to increase the agreement limits.

The 2023 agreement, attached as Exhibit "A", keeps the same general terms and provisions of the original 2012 agreement and increases the provision related to estimated project costs to \$200,000. This aligns with the General Manager's approval level within IRWD's procurement policy and will cover most of the periodic street improvement projects that the City undertakes. If a project's original estimated cost was under \$200,000 and the actual project cost exceeds \$200,000, this agreement would continue to be utilized for the improvement project. Individual projects where the estimate exceeds \$200,000 would be governed by separate agreements.

The agreement has been reviewed and approved by IRWD legal counsel. The City of Lake Forest staff will be concurrently taking the 2023 agreement to the City Council for approval.

FISCAL IMPACTS:

IRWD installations, modifications, relocations, and adjustments to facilities related to street improvement projects are covered by the General System Replacements/Modifications Projects that are included in each fiscal year capital budget.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15061 (b) (3). The activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Reimbursement Agreement subject to non-substantive changes between the City of Lake Forest and IRWD for the installation of miscellaneous facilities.

LIST OF EXHIBITS:

Exhibit "A" – Agreement between the City of Lake Forest and Irvine Ranch Water District for the Installation of Miscellaneous Facilities – 2023

REIMBURSEMENT AGREEMENT BETWEEN  
IRVINE RANCH WATER DISTRICT  
AND  
THE CITY OF LAKE FOREST  
FOR  
THE INSTALLATION OF MISCELLANEOUS FACILITIES

This Reimbursement Agreement (“**Agreement**”) is dated as of \_\_\_\_\_, 2023 (“**Effective Date**”) and is between IRVINE RANCH WATER DISTRICT, a California water district formed and existing pursuant to the California Water District Law, (“**DISTRICT**”) and the CITY OF LAKE FOREST, a municipal corporation (“**CITY.**”)

A. CITY periodically undertakes street improvement projects, a number of which involve concurrent construction, modification or relocation of IRWD’s water, sewer and/or recycled water facilities in the vicinity of the respective projects.

B. The parties have determined that for certain projects, it would be more efficient for CITY, rather than IRWD, to carry out the design, construction, modification or relocation of the affected water, sewer and/or recycled water facilities of IRWD (“**IRWD FACILITIES**”) due to the particular alignment and construction scheduling of IRWD FACILITIES.

C. The parties intend by this Agreement to provide for the terms under which the CITY will perform and IRWD will reimburse the CITY for any mutually-designated IRWD FACILITIES work associated with a CITY street improvement project.

The parties therefore agree as follows:

1. SELECTION OF PROJECTS. CITY and IRWD shall, by consultation between their respective staffs on an as-needed basis, review all proposed CITY street improvement projects to identify each project that (a) involves the design, construction, modification and/or relocation of IRWD FACILITIES and (b) the staffs mutually agree would be more efficiently accomplished by the CITY than IRWD.

1.1 Cost Estimates. IRWD shall prepare the cost estimates for the IRWD FACILITIES work. Costs which are the obligation of CITY or any party other than IRWD will not be considered within the estimated costs.

1.2 Projects Up to \$200,000. For any given project that has an estimated IRWD FACILITIES construction cost, prior to award, of up to \$200,000, the CITY and IRWD will execute an Addendum in the form of Exhibit A, which will be deemed incorporated into this Agreement. Each project for which an Addendum is executed is a “**Project**” under this Agreement. A Project and the related IRWD FACILITIES shall continue to be governed by the terms of this Agreement even if the actual bid costs or total costs of IRWD FACILITIES work following change orders exceeds \$200,000 for the Project. The total estimated construction cost

for IRWD FACILITIES is as set forth in the Addendum, however, IRWD shall reimburse to the CITY the actual construction costs. A Project and the related IRWD FACILITIES may be identified at any time so long as the related Addendum is executed prior to the termination of this Agreement.

1.3 Projects over \$200,000. For any given project that has an estimated IRWD FACILITIES construction cost over \$200,000 and for which the parties desire to have the IRWD FACILITIES constructed on a reimbursement basis must be governed by a separate agreement.

1.4 Non-Construction Costs. This Agreement does not alter any other obligations that exist between the parties relating to the allocation of costs for particular IRWD FACILITIES, such as easement rights.

2. CONSTRUCTION AND REIMBURSEMENT. For each individual Project for which an Addendum is agreed upon by the parties, the CITY shall initiate and pursue to completion the construction of the IRWD FACILITIES as shown on plans and specifications incorporated in the Addendum for the subject Project. IRWD shall cooperate with CITY with respect to the construction and schedules for completion of IRWD FACILITIES.

2.1 IRWD'S PLANS. CITY shall complete the IRWD FACILITIES pursuant to IRWD-approved plans and specifications (the "**Plans and Specifications**") which will be supplied by IRWD. The Plans and Specifications will be deemed to incorporate the applicable portions of IRWD's latest edition of *Construction Manual for the Construction of Water, Sewer, and Reclaimed Water Facilities* (the "**Construction Manual**"). IRWD shall have sole and absolute discretion as to all aspects of design and construction of the IRWD FACILITIES.

2.2 CITY'S PLANS; AWARD. CITY shall award any construction contract that includes IRWD FACILITIES to the lowest responsive, responsible bidder. Upon CITY's bid opening, CITY will submit a spreadsheet summary of the bids to IRWD for IRWD's review and approval prior to the CITY's award of the construction contract.

(1) Bid Approval. Within ten working days after receiving the bid summary, IRWD shall review the bid prices presented in the low bidder's proposal for the IRWD FACILITIES, and notify the CITY that it approves or rejects the bid prices. IRWD's approval will be deemed given if IRWD does not notify the CITY within ten working days.

(2) Bid Rejection. If IRWD rejects the bid received from the lowest responsive, responsible bidder for the CITY project for IRWD FACILITIES, then CITY may proceed with its project and pave over IRWD facilities identified in the project. IRWD will be responsible for raising IRWD's facilities to an at-grade level at IRWD's expense under an encroachment permit issued by the CITY.

2.3 CONTRACT DOCUMENTS. Upon transmitting the Notice to Proceed to the Contractor, CITY shall provide IRWD with one original copy of the fully-executed contract documents and one copy of the bid form.

3. INSPECTIONS. IRWD will be entitled to inspect the construction of IRWD FACILITIES as it deems necessary to assure compliance with the Plans and Specifications, including shop drawing review and/or material inspection. IRWD will promptly notify CITY of any portion of the work on IRWD FACILITIES which appears not to conform to the Plans and Specifications. The determination of IRWD as to conformity of IRWD FACILITIES with the Plans and Specifications will be made in IRWD's sole and absolute discretion. IRWD shall not unreasonably withhold its approval as to such conformity. CITY shall require its contractor to construct the IRWD FACILITIES so that the IRWD FACILITIES conform to the Plans and Specifications.

4. CHANGE ORDERS. If, during design or construction, CITY requests or initiates any revision to the Plans and Specifications that would increase the cost of the IRWD FACILITIES, then CITY shall bear those additional costs and IRWD will not provide reimbursement, except for revisions and costs that are determined necessary to construct IRWD FACILITIES in accordance with the Construction Manual and could not reasonably have been foreseen at the time bids were received. IRWD shall reimburse the cost of any such necessary and unforeseeable revisions, and shall reimburse the cost of any revisions requested or initiated by IRWD. CITY shall promptly furnish IRWD with copies of any proposed change orders to the Project contract within five working days of initiation of changed conditions to that contract, which change orders will be subject to IRWD approval if and to the extent any of the IRWD FACILITIES are affected by that change. IRWD will review and respond to proposed change orders affecting the IRWD FACILITIES within five working days of receipt by IRWD.

5. PROGRESS PAYMENTS. Within 30 calendar days after IRWD's receipt from CITY of each monthly invoice for the portion of a design or construction progress payment attributable to IRWD FACILITIES, together with supporting documentation, IRWD shall deposit with CITY the amount of that invoice. CITY shall maintain separate costs for all bid item and change order amounts expended by CITY in relation to the IRWD FACILITIES.

6. ACCEPTANCE. IRWD shall accept the IRWD FACILITIES when the Project, which includes the IRWD FACILITIES, has been completed, including any change orders approved by IRWD and accepted by CITY. CITY hereby disclaims any interest in IRWD FACILITIES and by its acceptance of the Project that includes the IRWD FACILITIES, automatically upon acceptance transfers and assigns to IRWD any and all right, title, and interest that the CITY may have in the IRWD FACILITIES. IRWD shall own, operate and maintain the IRWD FACILITIES following acceptance.

7. FINAL ACCOUNTING. Within 60 calendar days after CITY's final acceptance of the Project, CITY shall prepare and submit to IRWD a final accounting (the "**Final Accounting**") of the actual cost of the bid items and change order amounts attributable to the IRWD FACILITIES, plus an administration fee equal to four percent (4%) of the actual cost of the bid items and change order amounts attributable to the IRWD FACILITIES. The administration fee is deemed to cover costs of all items associated with surveying, compaction testing, permits, construction inspection, administration, accounting, and reproductions attributable to the IRWD FACILITIES ("**Costs**"). The Final Accounting must be accompanied by receipts and other supporting documentation. All legal costs attributable to IRWD FACILITIES will be invoiced in addition to Costs. IRWD shall pay CITY, within 30 calendar days after receipt of the Final

Accounting, the total amount of Costs, less the amount previously paid by IRWD pursuant to progress payment invoices. If the amount previously paid by IRWD pursuant to progress payment invoices exceeds the Costs as determined in the Final Accounting, then CITY shall refund the difference to IRWD within 30 calendar days following preparation of the Final Accounting.

8. AS-BUILTS. At the time of completion and acceptance of the IRWD FACILITIES, CITY shall furnish IRWD with “as-built” drawings.

9. IRWD AUTHORITY. Even if the CITY designs or constructs the IRWD FACILITIES, the IRWD FACILITIES to be completed hereunder, associated rights-of-way, and other privileges will at all times be subject to the applicable rates, rules and regulations of IRWD, as modified or amended from time to time.

10. GUARANTEE. CITY shall cause its contractor for the IRWD FACILITIES to guarantee the IRWD FACILITIES against defects in workmanship and materials for a period of one year from the date of acceptance by IRWD (“**Guarantee Period**”). If any portion of the IRWD FACILITIES are found to not be in conformance with the provisions of the Plans and Specifications during the Warranty Period, then CITY shall cause the IRWD FACILITIES to be brought or restored to full compliance with the requirements of the Plans and Specifications, including any test requirements. This guarantee is in addition to any and all other warranties, expressed or implied, from CITY contractors or material manufacturers with respect to the IRWD FACILITIES. The guarantee and obligations under this section will not be relieved or abrogated by IRWD’s inspection and/or approval of the IRWD FACILITIES. This section sets forth the entire agreement of CITY with respect to guarantees and warranties of the IRWD FACILITIES, but this section in no way limits any expressed or implied warranties of other persons with respect to the IRWD FACILITIES. This section survives any expiration or termination of the Agreement.

11. INDEMNITY. This section survives any expiration or termination of the Agreement.

11.1 CITY shall indemnify, defend and hold IRWD, its officers, agents and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen during construction of the IRWD FACILITIES and prior to acceptance by IRWD, as a result of any work or action performed by CITY or on behalf of CITY, save and except to the extent such death, injury, loss damage or expense is determined by a court of competent jurisdiction to have been proximately caused in whole or in part by any negligence of IRWD, its officers, agents or employees or by any act or omission for which IRWD, its officers, agents or employees are liable without fault.

11.2 IRWD shall indemnify, defend and hold CITY, its officers, agents, and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen either (i) as a result of any act performed by IRWD, its officers, agents, or employees, with respect to the construction of the IRWD FACILITIES, or (ii) following IRWD acceptance of the IRWD FACILITIES, with respect to maintenance and operation of the IRWD FACILITIES, save and

except to the extent such death, injury, loss, damage or expense is determined by a court of competent jurisdiction to have been proximately caused in whole or in part by any negligence of CITY, its officers, agents or employees, or by any act or omission for which CITY, its officers, agents or employees are liable without fault.

12. INSURANCE. CITY shall cause its contractors for the construction of IRWD FACILITIES to obtain insurance coverage sufficiently broad to insure the matters set forth in this Agreement and to include IRWD as an additional insured on all insurance policies that CITY requires its contractors to provide. As evidence of such insurance coverage, CITY shall, prior to commencement of construction of the IRWD FACILITIES, provide IRWD with certificates of insurance and insurance endorsements in forms that are acceptable to IRWD.

13. TERMINATION.

13.1 OF ADDENDA. Either party may, upon written notice effective five working days after receipt, terminate any Addendum and thereby delete the respective Project from this Agreement, subject to the provisions of this section. If at the request or direction of a party other than CITY, including IRWD, the IRWD FACILITIES construction is not accomplished or completed, IRWD will remain obligated for the actual amount of any Costs incurred by CITY for the items set forth in Section 11 up to the date of termination.

13.2 OF AGREEMENT. Either party may terminate this Agreement by giving the other party 60 calendar days' prior written notice. This Agreement will continue in effect until either party exercises that right to terminate. Any active Projects will remain subject to this Agreement until the completion of construction and reimbursement for the related IRWD FACILITIES.

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

IRWD:

Irvine Ranch Water District  
15600 Sand Canyon Avenue  
Irvine, CA 92618-3102  
Attn: General Manager

CITY:

City of Lake Forest  
100 Civic Center Dr.  
Lake Forest, CA 92630  
Attn: Director of Public Works

15. SUCCESSORS; INTEGRATION; MODIFICATION. This Agreement is binding upon and will inure to the benefit of the successors and assigns of CITY and IRWD. This Agreement constitutes the entire Agreement between CITY and IRWD and supersedes all prior understandings and Agreements between the parties with respect to reimbursements for IRWD FACILITIES work in CITY streets. This Agreement may be modified only in writing, signed by both parties.

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

17. SEVERABILITY. If any term, provision, covenant or condition of this Agreement is held to be invalid, void or otherwise unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement will not be affected by that determination, and each term, provision, covenant or condition of this Agreement will continue to be valid and enforceable to the fullest extent permitted by law.

The parties are signing this Agreement as of the Effective Date.

IRVINE RANCH WATER DISTRICT

CITY OF LAKE FOREST, a Municipal Corporation

By \_\_\_\_\_  
Paul A. Cook, General Manager

By: \_\_\_\_\_  
Mayor

Date: \_\_\_\_\_

Date: \_\_\_\_\_

ATTEST:

APPROVED AS TO FORM:  
Hanson Bridgett, LLP

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

By: \_\_\_\_\_  
District Counsel

By: \_\_\_\_\_  
City Attorney



EXHIBIT A  
ADDENDUM No. \_\_\_\_\_

TO

REIMBURSEMENT AGREEMENT BETWEEN  
IRVINE RANCH WATER DISTRICT AND THE CITY OF LAKE FOREST  
FOR THE INSTALLATION OF MISCELLANEOUS FACILITIES

By execution of this Addendum, the parties agree that the following Project has been identified pursuant to Section 1 of the agreement dated \_\_\_\_\_, 20\_\_, entitled “REIMBURSEMENT AGREEMENT BETWEEN IRVINE RANCH WATER DISTRICT AND THE CITY OF LAKE FOREST FOR THE INSTALLATION OF MISCELLANEOUS FACILITIES (the “Agreement”) and that such Project and the below-specified IRWD FACILITIES are covered by the Agreement.

Project: “\_\_\_\_\_” as depicted on attached Exhibit “1” and incorporated in this Addendum.

IRWD FACILITIES: “\_\_\_\_\_”  
(depicted on the plans and specifications incorporated by reference in this addendum).

Estimated Construction Cost of IRWD FACILITIES: \$ \_\_\_\_\_

4% Administrative Fee: \$ \_\_\_\_\_

Total Estimated Cost of Reimbursement: \$ \_\_\_\_\_

IRVINE RANCH WATER DISTRICT

CITY OF LAKE FOREST

By \_\_\_\_\_  
PRINT NAME

By: \_\_\_\_\_  
PRINT NAME

Date: \_\_\_\_\_


Date: \_\_\_\_\_

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September 19, 2023

Prepared by: N. Mai / M. Cortez

Submitted by: K. Burton

Approved by: Paul A. Cook 

## ENGINEERING AND OPERATIONS COMMITTEE

### MICHELSON WATER RECYCLING PLANT BIOSOLIDS LIFT STATION AND SEWER PIPELINE CONSULTANT SELECTION

#### SUMMARY:

The Michelson Water Recycling Plant (MWRP) Biosolids Lift Station and Sewer Pipeline will upsize an existing segment of sewer pipeline and retrofit the existing MWRP Stormwater Pump Station 3 (SWPS3) to separate waste flow from stormwater flow. The separated flows will allow stormwater to be pumped to Pond C in IRWD's San Joaquin Marsh and waste flow to be pumped to the MWRP headworks for treatment. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Tetra Tech in the amount of \$364,000 to provide engineering design services for the Biosolids Lift Station and Sewer Pipeline.

#### BACKGROUND:

Stormwater and process waste flow streams from the Biosolids and Energy Recovery Facility converge at SWPS3 and are then pumped to Pond C in IRWD's San Joaquin Marsh. Testing of the water at the SWPS3 indicated the minor presence of waste flow contaminants and should not be sent to Pond C to comply with the District's permit. Instead, the waste flow streams need to be separated and conveyed to the sewer headworks for treatment.

In July 2023, HDR completed a study that identified all waste flow streams from the Biosolids and Energy Recovery Facility and to evaluate alternatives to route these flows to the headworks. The recommended alternative will convey a total waste flow of approximately 1,500 gallons per minute from Biosolids and Energy Recovery Facility in an upsized gravity sewer to a modified SWPS3 with two separate wetwells: one for SWPS3 and one for the sewer from the Biosolids Lift Station. The waste flow will then be pumped from the Biosolids Lift Station through the above-grade pipe manifold and existing buried eight-inch sewer pipeline, and ultimately discharge into the sewer headworks to begin treatment. Other required improvements at the SWPS3 will include a new set of submersible pumps, updated piping, electrical, and controls and instrumentation. A site plan identifying the project elements is provided as Exhibit "A".

#### Consultant Selection:

In August 2023, staff issued a request-for-proposal for the design to four consultants: Ardurra, MKN Associates, Tetra Tech, and West Yost Associates. All four firms submitted proposals on September 7, 2023. Staff evaluated the proposals based on the consultants' project approach, project team, and relevant experience and recommends the selection of Tetra Tech. A few consultant differentiators are discussed below.

Both Tetra Tech and West Yost Associates provided proposals that reflected a strong understanding of the project requirements and the level of effort needed to complete the design. Both included the design of a sewer bypass plan, which is necessary when replacing an active sewer facility, whereas MKN Associates and Ardurra did not. Tetra Tech proposed roughly 1,800 work hours and an improvement plan set composed of 50 sheets to fully capture all design requirements. In contrast, West Yost proposed 1,000 work hours and a 28-sheet plan set. With a fee of \$364,000, Tetra Tech's unit price per drawing and unit price per hour were the lowest out of all four consultants. Additionally, Tetra Tech's design team has extensive experience working on IRWD lift station and pump station projects, including designing temporary sewage bypass facilities. Therefore, staff recommends the selection of Tetra Tech based on the design concepts, project approach presented within their proposal, and the strength of their design team. The consultant evaluation matrix is attached as Exhibit "B", and Tetra Tech's proposal is attached as Exhibit "C".

FISCAL IMPACTS:

MWRP Biosolids Lift Station and Sewer Pipeline, Project 12541, is included in the Fiscal Year 2023-24 Capital Budget. The current budget and Expenditure Authorization are sufficient for this work.

ENVIRONMENTAL COMPLIANCE:

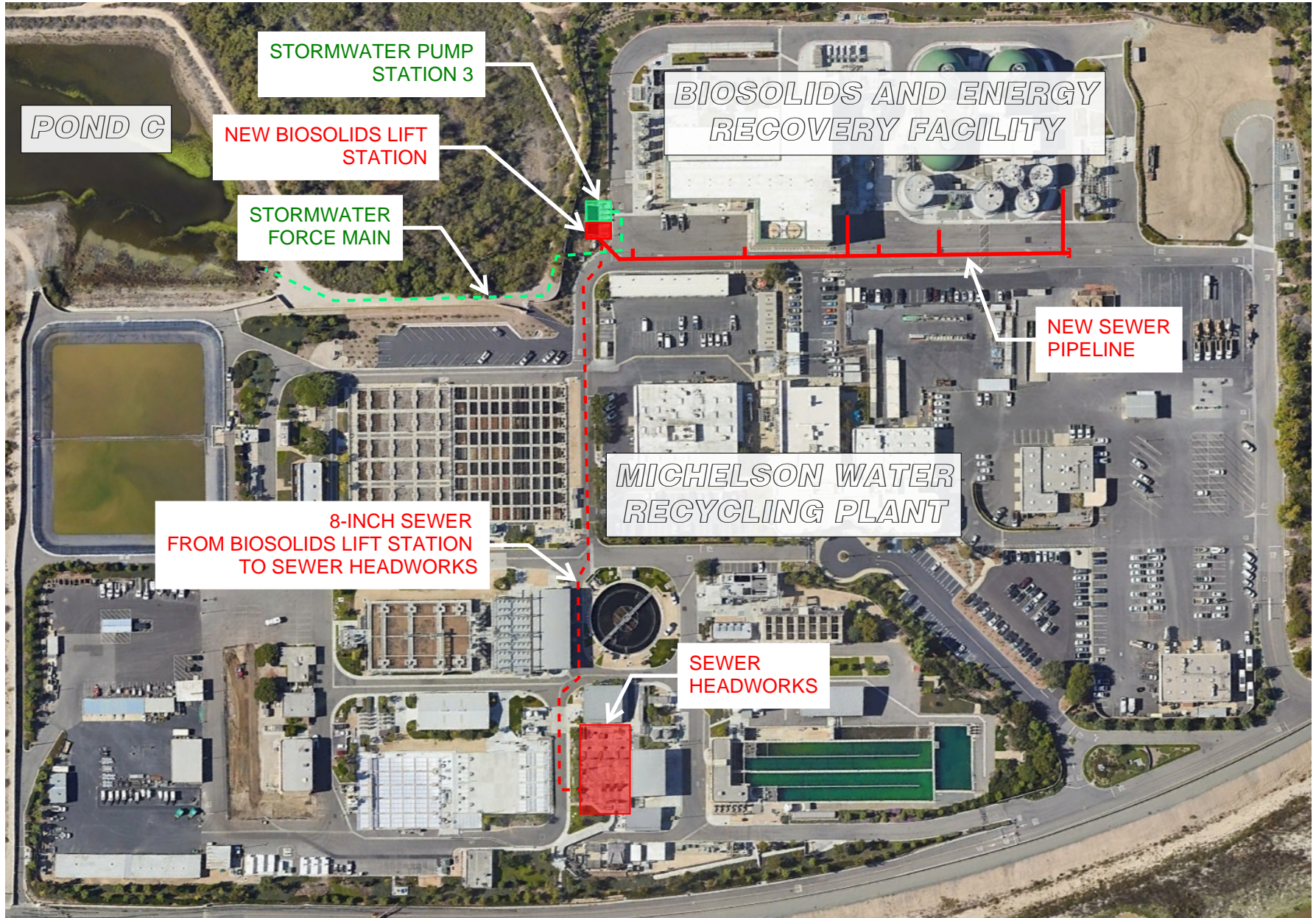
This project is subject to the California Environmental Quality Act (CEQA). In conformance with the California Code of Regulations Title 14, Chapter 3, Section 15004, the appropriate environmental document will be prepared when "meaningful information" becomes available. It is expected that preliminary analysis will lead to the preparation of a Notice of Exemption for the project.

RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with Tetra Tech in the amount of \$364,000 to provide engineering design services for the Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline, Project 12541.

LIST OF EXHIBITS:

- Exhibit "A" – Site Plan
- Exhibit "B" – Consultant Selection Evaluation Matrix
- Exhibit "C" – Tetra Tech's Proposal



**SITE MAP**  
**MICHELSON WATER RECYCLING PLANT**  
**BIOSOLIDS LIFT STATION AND SEWER PIPELINE**



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**EXHIBIT "B"**  
**PR 12541 Biosolids Lift Station and Sewer Pipeline Consultant Selection Matrix**

	Weights	Ardurra		MKN Associates		Tetra Tech		West Yost Associates	
<b>TECHNICAL APPROACH</b>									
*Project Understanding	20%	4		3		1		2	
*Project Approach	35%	4		3		2		1	
*Experience	30%	4		3		1		2	
*Project Team	15%	4		2		1		3	
<i>Forced Ranking System: 1- Best, 2- Second Best, etc.</i>									
Weighted Score									
		4.00		2.85		1.35		1.80	
<b>CONSULTANT RANKING</b>									
		4		3		1		2	
<b>PROJECT TEAM</b>									
Project Manager		Aric Gnesa		Kevin Saleh		Tom Epperson		Robert Reid	
Technical Advisor		Amy Czajkowski				Mike Tsoi			
QA/QC		Robert Carley		Safa Kamangar		Mark Bush		Tim Banyai & Dan Groves	
Civil		Christian Minerman		Kathleen Hong & Michelle Little		Erin Cabañero		Jane Costello	
Structural						Eric Yuen			
Mechanical		Rick Kennedy		Kathleen Hong & Michelle Little		Erin Cabañero		Jane Costello	
Electrical		Agata Ristow				Mazen Kassar		Zane Wilsterman	
Instrumentation and Controls		Chad Morris				Mazen Kassar		Michael Gruenbaum	
<b>SUBCONSULTANTS</b>									
Geotechnical		Ninyo & Moore		Cotton, Shires and Associates		Leighton Consulting		NMG Geotechnical	
Surveying		Guida Surveying		CL Surveying		Metz Surveying		Borchard Surveying	
Pothole		Underground Solutions		T2 Utility Engineers		C-Below		Underground Solutions	
Structural		Peterson Structural		Peterson Structural				VE Solutions	
Electrical & Instrumentation and Control				Linkture Consulting Engineers					
<b>PLAN SET SHEET COUNT</b>									
General		5		5		9		7	
Civil		5		5		10		5	
Structural		2		2		8		3	
Mechanical		2		2		5		3	
Electrical		14		7		11		8	
Instrumentation and Controls		5		6		7		2	
<b>TOTAL SHEETS</b>		<b>33</b>		<b>27</b>		<b>50</b>		<b>28</b>	
<b>FEE / HOURS</b>									
		Fee		Hours		Fee		Hours	
Task 1 - Project Management		\$95,117		410		\$23,757		80	
Task 2 - Final Design		\$328,618		1471		\$90,502		463	
Optional Task 3 - Bid Assistance		\$12,386		52		\$10,094		52	
Subconsultant Fees		\$97,433				\$121,359			
<b>TOTAL FEE and HOURS</b>		<b>\$533,553</b>		<b>1,933</b>		<b>\$245,712</b>		<b>595</b>	
<b>UNIT PRICES</b>									
\$/dwg		\$16,168				\$9,100			
\$/hour		\$276				\$413			
						\$7,280			
						\$197			
								\$11,067	
								\$308	
<b>Professional Liability Insurance</b>									
		Yes		Yes		Yes		Yes	
<b>General Liability Insurance</b>									
		Yes		Yes		Yes		Yes	

Note: This page is intentionally left blank.



Exhibit "C"

# **Proposal for Engineering Design Services Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline**

September 7, 2023

*Prepared for:*



3512 Michelson Drive  
Irvine, CA 92612

*Prepared by:*



17885 Von Karman Ave., Suite 500  
Irvine, CA 92614  
949.809.5000

September 7, 2023

Nhan Mai, PE, Project Manager  
Irvine Ranch Water District, Engineering Operations Support  
3512 Michelson Drive  
Irvine, CA 92612

Transmitted via email: mai@irwd.com

**Reference: Proposal for Engineering Design Services for the  
Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline**

Dear Mr. Mai,

Thank you for the opportunity to submit our proposal to provide engineering design services for the Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline project. Tetra Tech appreciates the relationship that has been built with the Irvine Ranch Water District (IRWD/District) during our past projects and looks forward to continuing and expanding this association in the future. We have an outstanding team, which combines the experience, depth, and understanding needed for the successful delivery of this project. Our project team brings the following distinct advantages to the District:

- ▶ **Extensive Sewer Lift Station Design Experience:** During the last twenty (20) years, members of our project team have been involved in the **design and/or construction of more than twenty (20) sewer lift station projects** for various Southern California agencies.
- ▶ **Previous IRWD Experience with Temporary Sewage Bypass Facilities:** Tetra Tech has previously completed the design, bidding and construction support services for the Harvard Avenue Trunk Sewer Diversion Structure Rehabilitation which included the installation of a detailed temporary sewage bypass system so the rehabilitation work could be completed by the Contractor.
- ▶ **In-House Graphics, Structural, Electrical, and Instrumentation Control Capabilities:** Tetra Tech has our own in-house graphics team to create renderings, registered structural, electrical, and instrumentation control engineers who have worked together as a team on numerous projects for the District.
- ▶ **Dedication to the District:** Our approach will include a “teamwork and partnering” relationship. We will do this by exceeding your expectations through innovative and smart solutions, attention to detail, and our understanding of the District’s design processes and requirements.

Our project team is committed to the success of this project, and we endeavor to exceed your expectations in delivering the services outlined in our proposal. Should you have any questions regarding our proposal, please feel free to contact me at 949/809-5156 or via email at tom.epperson@tetrattech.com.

Sincerely,



Tom Epperson, PE  
Vice President

M:\Marketing\Proposals\FY 2023\IRWD\_MWRP-Biosolids-LS-Sewer-Pipeline

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## FIRM OVERVIEW

Based in Pasadena, California, Tetra Tech is a full-service engineering and science firm with a substantial global presence. We help our clients conceptualize and execute innovative solutions to their most difficult problems. From front-end science and planning to design, construction management and operations, Tetra Tech’s global service network, facilitated by our initiatives program that coordinates resources for specific markets and provides best in-class experts with worldwide project experience.

Founded in 1966, Tetra Tech is a nationally recognized engineering and resource management firm of more than 27,000 engineers, scientists, construction specialists, and technical support personnel in 550 offices worldwide. Listed on the NASDAQ Exchange (TTEK), Tetra Tech’s annual revenues now exceed \$4.5 billion (2023). Thus, we are in an excellent financial position and can provide the necessary resources to rapidly deploy and meet aggressive project schedules.

Tetra Tech consistently ranks among the top engineering firms annually according to the *Engineering News-Record*. **In 2023, Tetra Tech was ranked 4th among the top 500 design firms nationwide and was ranked #2 in the Sewer & Waste service industry.**

Tetra Tech’s goal is to provide the necessary expertise and resources to deliver projects on time, within budget, and in compliance with the design and construction standards of our clients and approval agencies. Leveraging our national presence, multi-disciplinary team, and client focused service, we apply lessons learned from our vast experience to each and every challenge. Clients benefit from this approach with consistently high-quality service, innovative designs, and functional solutions that are responsive to their needs and often exceed their expectations. A cornerstone of our success is our client-focused service, staff qualifications, firm commitment, and desire to successfully complete each assignment to the satisfaction of our clients.



## DEDICATION TO THE DISTRICT

Tetra Tech is dedicated to Irvine Ranch Water District (IRWD/District) as illustrated in working together on more than 30 projects for IRWD during the last 20 years. Our approach will include a teaming and partnering relationship with the District. We will strive to exceed your expectations through proactive project management, strong quality control measures, attention to detail, extensive design experience, close communication, and schedule and budget management.

## PROJECT UNDERSTANDING

Stormwater, together with waste flow streams from the Biosolids and Energy Recovery Facility, converge at Stormwater Pump Station 3 (SWPS-3) and are then pumped to the holding Pond C of the San Joaquin Marsh. Testing of the water at the SWPS-3 indicated that the waste flow had contaminants that could not be sent to Pond C pursuant to the District’s current permit. Instead, the waste flow streams need to be separated from the aggregate flow and conveyed to the sewer headworks. Additionally, the existing gravity sewer system conveying the waste flow streams has limited capacity and is unable to adequately convey the waste flow to SWPS-3.

IRWD retained HDR to identify all waste flows from Biosolids and Energy Recovery Facility and evaluate alternatives to route these flows back to the sewer headworks.

Seven waste flow sources were identified, with an estimated total of 1,332 gpm. To effectively segregate the waste flow, the gravity sewer is to be upsized and the existing SWPS-3 is to be modified to create two separate wetwells for stormwater (Stormwater Pump Station 3) and sewer (Biosolids Lift Station). In HDR's evaluation, each of the waste flow will connect to a new gravity pipe to convey the flow to Biosolids Lift Station (BLS). A new set of submersible pumps, piping, support, conduits, and instruments will be installed for BLS. The conceptual plan of the proposed gravity pipeline and modifications to the existing SWPS-3 are provided in Exhibit "A" of the Request for Proposal (RFP). Record Drawings of the yard piping for the Biosolids and Energy Recovery Facility and SWPS-3 are provided in Exhibit "B" of the RFP.

This Project will design and evaluate the following items:

1. A new gravity pipeline to capture and convey the waste flows from Biosolids and Energy Recovery Facility to the BLS.
2. Modifications to the existing SWPS-3 to isolate the waste flows from the stormwater flows, including the inlet piping and emergency outlet for SWPS-3 and a new cover for BLS.
3. Verify and define the area classification of SWPS-3 and BLS (i.e., Class 1 Division 1).
4. Evaluate the new submersible pumps, including discharge piping, sump size and pump supports for BLS.
5. Evaluate all electrical infrastructure and improvements for the new submersible pumps.
6. Evaluate the instrumentation and control system and improvements for the new submersible pumps.
7. Incorporate safety elements with the modifications to mitigate fall hazards and to facilitate confined space rescue operations.

## APPROACH

### Why Tetra Tech

Tetra Tech's team brings the following advantages to the District for the Michelson Water Recycling Plant (MWRP) Biosolids Lift Station and Sewer Pipeline project:

- **Extensive Sewer Lift Station Design Experience.** During the last twenty (20) years, members of our project team have been involved in the **design and/or construction of more than twenty (20) sewer lift station projects** for various Southern California agencies.
- **Previous IRWD Experience with Temporary Sewage Bypass Facilities.** Tetra Tech has previously completed the design, bidding and construction support services for the Harvard Avenue Trunk Sewer Diversion Structure Rehabilitation which included the installation of a detailed temporary sewage bypass system so the rehabilitation work could be completed by the Contractor.
- **In-House Graphics, Structural, Electrical, and Instrumentation Control Capabilities.** Tetra Tech has our own in-house graphics team to create renderings, registered structural, electrical, and instrumentation control engineers who have worked together as a team on numerous projects for the District.
- **Dedication to the District.** Our approach will include a "teamwork and partnering" relationship. We will do this by exceeding your expectations through innovative and smart solutions, attention to detail, and our understanding of the District's design processes and requirements.

Our extensive experience with similar lift station and sewer pipeline projects will ensure that IRWD will receive a high level of service delivered by qualified, knowledgeable engineering professionals. Highly meticulous and coherent plans and specifications greatly benefit all project stakeholders, with the largest benefit realized by the Owner. Quality contract documents clearly lead to a larger number of bidders, lower competitive bid prices *due to increased competition, the contractor has less to assume and take the risk for, and a greater overall comfort level in our design based on a long history of successful projects*, and lowest overall cost while achieving a very high-quality end product. Quality contract documents mitigates the potential, and impact of change orders, and sets forth a standard of quality the contract must achieve.

We feel our completed work on the Peters Canyon Channel Water Capture and the Harvard Avenue Trunk Sewer Diversion Structure Rehabilitation projects are examples of our quality product which has resulted in a low overall cost for IRWD. We want to utilize the experience gained from working on the previous projects, and to continue providing IRWD with exceptional services to assure that another project is successfully completed to the satisfaction of IRWD.

## General Approach

Tetra Tech fully understands the importance of your project. We are offering an outstanding team, which combines the experience, depth, and understanding needed for the successful delivery of this project. Our core principles establish how we plan to work together with IRWD to successfully complete this project:

✓	<b>Service:</b> Tetra Tech puts its clients first. We listen to and better understand our clients' needs and deliver smart, cost-effective solutions that meet those needs. Our philosophy is to "Do it Right."
✓	<b>Value:</b> Tetra Tech takes on our clients' problems as if they were our own. We develop and implement real-world solutions that are cost-effective, efficient, and practical.
✓	<b>Excellence:</b> Tetra Tech brings superior technical capability, disciplined project management, and excellence in safety and quality to all of our work.
✓	<b>Opportunity:</b> Our people are our number one asset. Our workforce is diverse and includes leading experts in our fields. Our entrepreneurial nature and commitment to success provides challenges and opportunities.

We value the relationship that has been established with IRWD and look forward to continuing and further developing this association in the future. We are committed to providing IRWD with the same high-quality service you expect and deserve. Our strength lies in our proven track record that has led to successful completion of multiple projects for IRWD as well as other nearby agencies.

No two projects are the same, although many are similar. The key is to utilize elements of work that have been successful and can be appropriately applied to this project, continue to improve construction efficiencies without lowering quality based on contractor feedback, and maximize the overall operational flexibility.

## PROJECT MANAGEMENT

Over the years, Tetra Tech has established well defined, rigorous procedures for project management. These techniques have been developed and refined and have contributed to our success and reputation. The keys to our project management system are communications, project planning, monitoring, and quality assurance.

The Tetra Tech team's goal is to keep IRWD staff "in the loop" from day one of the project. Communication tools include the formal progress reports afforded through our project management system and an informal give-and-take approach starting with **Tom Epperson, PE, our Project Manager** and **Mike Tsoi, PE, our Team Leader**, and extending to every member of our project team. At the project's outset, the chain of command and appropriate communication methods will be agreed upon and can be as formal or as informal as IRWD desires.

We will use the entire communication spectrum. We will conduct formal meetings with agenda and typewritten notes, and we will use informal meetings with notes to file. We will also have documentation of telephone communications, with notes to file or letters of understanding as appropriate follow-up. Another important communication link will be our e-mail system.

We are proposing to use e-mail to keep IRWD aware of the status of the project. Every two weeks, Tetra Tech will prepare a brief (one or two paragraphs or bullet items) e-mail summarizing activities completed in the previous weeks; the activities planned for the upcoming weeks; any critical decisions that need to be made; and schedule of upcoming events/meetings. In addition, each month we will prepare a project status memorandum containing summary of project schedule; description of key issues/concerns which have surfaced along with proposed options and solutions; and a project status summary report showing current schedule and budget.

## KEY DESIGN ISSUES

Successful implementation of the project will involve resolution of several key issues. We believe our team has an excellent grasp of these issues based on our overall experience, capabilities and familiarity with other lift station projects as well as our experience with IRWD projects, personnel, and policies. Our approach to resolving project issues is summarized in the following table:

SUMMARY OF KEY ISSUES	
Key Issues	Summary
<b>Pipelines</b>	<ul style="list-style-type: none"> <li>Based on USA markings near Biosolids area, minimum available utility corridor.</li> <li>Underground utilities south of SWPS-3 is congested for alignment to Headworks.</li> <li>Pipeline construction will be slow since a dump truck will not be able to be located adjacent to trench excavation (single train construction).</li> </ul>
<b>Submersible Pumps</b>	<ul style="list-style-type: none"> <li>Perform system curve and hydraulic analysis of new pumps.</li> <li>Size new submersible pumps, including discharge piping, sump, supports.</li> <li>Evaluate electrical improvements for new pumps.</li> <li>Electrical power will need to be obtained from a control panel within adjacent building.</li> </ul>
<b>Isolate Waste Flows from Stormwater Flows</b>	<ul style="list-style-type: none"> <li>Modifications to existing SWPS-03 to isolate waste flows from stormwater flows, including the inlet piping and emergency outlet.</li> <li>Evaluate modifications in the existing wetwell floor needed for the new submersible pumps.</li> <li>New cover for the Biosolids Lift Station.</li> </ul>
<b>Accessibility</b>	<ul style="list-style-type: none"> <li>Limited work area around the SWPS-3 for both construction work and bypass pumping equipment (bounded by access road and slope to marsh).</li> <li>Roads are narrow for maintenance access so limited excess area for construction activities.</li> <li>P&amp;S will identify acceptable work areas and limitations on usage of access roads.</li> </ul>
<b>Maintain Facility Operation</b>	<ul style="list-style-type: none"> <li>Bypass pumping (min. 1,400 gpm) required during construction within wetwell.</li> <li>Construction sequencing will be key and included in P&amp;S.</li> <li>Provide location for bypass pumping equipment.</li> <li>Contractor coordination to maintain access to MWRP during construction.</li> </ul>
<b>Safety Elements</b>	<ul style="list-style-type: none"> <li>Verify and define the area classification of SWPS-3 and BLS (i.e., Class 1, Div 1)</li> <li>Determine safety elements to mitigate fall hazards and to facilitate confined space rescue operations in all design and modifications to existing SWPS-3.</li> </ul>

## SCOPE OF WORK

Members of the Project Team have performed an in-depth review of the project description and scope of work within the RFP as well as the Exhibits provided. We propose to provide the following scope of work for the preliminary design, final design and bid phase services with each phase being authorized by a separate Notice-to-Proceed. All work performed on this project will conform to IRWD standards and requirements including, but not limited to, the following: IRWD Project Manual; IRWD Construction Manual; and IRWD Electrical and Instrumentation and Control (I&C) Design Standards.

The Final Design shall include plans, sections, details, and traffic control plans for the construction of the new gravity pipeline, new pumps, and modifications to the existing SWPS-3. Tetra Tech will review and utilize HDR’s conceptual design to complete the design. This Project will be designed for current flows and additional flow from future developments at MWRP; and in accordance with IRWD’s current standard details and specifications, NFPA 820, and NFPA 70 (NEC). Tetra Tech will complete the design and specifications, construction cost estimates and schedule for the Project. The Final Design shall generally consist of, but not be limited to, the following tasks.

### Task 1: Project Management

Tetra Tech shall conduct project management activities to ensure adherence to scope, schedule, and budget; promote efficient communication between Tetra Tech, IRWD, permitting agencies, and others as required; and implement an effective quality assurance/quality control (QA/QC) program.

- A. Meetings:** Tetra Tech will organize, attend, and conduct meetings as required; prepare and submit meeting agendas for IRWD review and concurrence at least five days prior to the meeting; and prepare draft and final minutes for all meetings and submit them to IRWD within one week of the meeting by email with PDF attachment. Tetra Tech will maintain an action and decision log during the design. For all design presentation meetings, the meeting will occur within two days following the submittal.

For budgeting purposes, Tetra Tech will participate and lead the following meetings:

Meeting/Workshop	Description
Design Kickoff/Site Meeting (in-person)	One (1) 1-hour meeting
Gravity Pipeline Design Validation	One (1) 1-hour meeting
Electrical Design Workshop	One (1) 1-hour meeting
Pump Evaluation and Selection	One (1) 1-hour meeting
30% Draft Submittal Presentation (in-person)	One (1) 1-hour meeting
Construction Sequence and Commissioning	One (1) 2-hour meeting
IRWD’s Standard Operations, Programming, and Tagging Discussion	One (1) 1-hour meeting
60% Draft Submittal Presentation (in-person)	One (1) 1-hour meeting
100% Design Submittal Presentation (in-person)	One (1) 1-hour meeting

Note: Tetra Tech’s Electrical, Instrumentation and Control, and other key staff shall plan to meet for a minimum of two on-site visits during the preliminary design. The on-site visits may be conducted at the time of the coordination meetings or separately.

- B. Quality Assurance/Quality Control:** Tetra Tech will develop and implement proven QA/QC measures throughout the Project to ensure ongoing and consistent quality control throughout all Project phases.
- C. Safety:** It is anticipated that Tetra Tech may be exposed to High Hazards as part of the Project. High Hazards may include, but not be limited to, confined space entry, hazardous environment, and arc flash hazards during inspections or exploratory work. Tetra Tech will provide safety and other written programs applicable to the High Hazards to be encountered.



## Task 2: Final Design

This Project shall result in the preparation of the Contract Documents, i.e., improvement plans, and Project Manual for the pipeline and pump design and wetwell modifications. Tetra Tech will also provide an Opinion of Probable Construction Cost and Project Schedule. Tetra Tech will address the items discussed below.

- A. Review of Background Material:** Review background material for the Project, including but not limited to Record Drawings, IRWD General Design Requirements, and IRWD Standard Drawings.
- B. Topographic Field Survey:** Metz Surveying, as a subconsultant to Tetra Tech, will perform field surveying and produce topographic maps that will be used as a base plan for the proposed improvements.
  - 1. Include all surface and street improvements along the pipeline alignment and surrounding SWPS-3.
  - 2. Measure invert elevations at pipe inlets and outlets, cleanouts, manholes, and catch basins.
  - 3. Coordinate with IRWD for access and to minimize interference with IRWD's daily Operations.
- C. Utility Review:** Perform utility research to locate utilities or other physical features within the project vicinity. Utility research to include completing a desktop evaluation of available record drawings and a site walk to verify surface improvements.
- D. Pothole Investigation:** C-Below, as a subconsultant to Tetra Tech, will complete potholes as needed to identify, locate, and verify adjacent and crossing utilities with the pipeline alignment and to determine the locations and depths of proposed point of connections.

Tetra Tech has provided a unit cost to complete ten (10) pothole excavations and one (1) slot trench. This work will include all necessary traffic control measures to perform the excavations and survey of the exposed utilities. If additional potholes or trenches are needed, they will be invoiced at the proposed unit price.

- E. Geotechnical Review:** Leighton Consulting, as a subconsultant to Tetra Tech, will conduct a review of geotechnical reports and investigations. Past geotechnical reports and investigations are included in Exhibit "C" of the RFP. Based on the review of the existing reports, use the previous soils analyses in the design or determine if additional soils investigation is required.

Leighton's proposal is based on the following conditions:

- IRWD will provide the missing logs of borings BB-1, BB-2, BG-9, BL-12, NH-6 and NH-8 (W) and test pit T-6.
- IRWD will resolve the discrepancies between Plate 1 and Appendix B of the geotechnical report regarding the conflicting information of the test pits, such as total depths and depths to alluvium.
- IRWD will provide permission for Leighton Consulting to use and include the existing geotechnical logs and laboratory test results in Leighton's report.

If this information is provided, no additional borings will be required for Leighton to prepare this review.

- F. Optional Geotechnical Investigation:** If necessary, Leighton Consulting will conduct a geotechnical investigation. Drill up to a total of three (3) borings (one soil boring every 500-feet) up to a depth of 15-feet below existing grade or auger refusal, whichever is shallower to determine the geotechnical conditions. Provide soils analysis for use in the design. This task will be included in the scope of work in the professional services agreement and will be authorized if needed.
- G. Structural:** Tetra Tech will evaluate and design a cover for the sewer wetwell suitable for the new environment. The wall separating the sewer wetwell and the storm wetwell shall be designed and detailed to isolate the two wetwells. Verify and evaluate modifications in the sewer wetwell floor needed for the new submersible pumps. The design of the sewer wetwell's interior surface will incorporate protection against corrosion.

- H. Mechanical:** Tetra Tech will evaluate submersible pumps to convey the waste flows from BLS to Headworks utilizing the existing buried 8-inch sanitary line. The submersible pumps will be designed for current and future flows. The existing discharge piping, pump supports, and above-grade pipe manifold shall be replaced and designed to accommodate the new pumps.
- I. Electrical:** Review the existing electrical infrastructure from the feeder breaker at MCC-4101, cable trays, conduits, pullboxes, and local control panels from the Solids Handling Building to SWPS-3. Evaluate if there is sufficient power, control, and signal conductors for the new submersible pumps. Determine if improvements to the electrical infrastructure are required, and design new conduits, duct banks, and pullboxes as needed. This task will include evaluating the available power from the existing 1 megawatt emergency generator. Complete the design for all electrical site, power, control and signal plans, schematics, local control panel elevation and BOM, conduit schedules, and details.
- J. Instrumentation and Control:** Review the existing equipment and instrumentation and control components and evaluate improvements and modifications to update the facility to District’s current standard. Review SWPS-3 instruments for their classified area. Provide instrumentation drawings including P&IDs with updated IO tags. Verify that the existing PLC cabinet has sufficient spare IO to accept all new signals. Review and update the PLC IO list and include the exact IO termination point. Tetra Tech will develop a control narrative to explain the methods of operation for the new submersible pumps in remote and local operations.
- K. Safety:** Tetra Tech will include fall protection and access for confined space rescue in the design and modifications to the existing SWPS-3. All safety elements will comply with CalOSHA design requirements and guidelines.
- L. CEQA Documentation:** The Project is subject to the California Environmental Quality Act (CEQA). IRWD will prepare CEQA documentation for the Project. Tetra Tech will provide exhibits and other information to assist with preparation of the documentation.
- M. Project Manual:** Tetra Tech will prepare a Project Manual in standard IRWD format for the Contract Documents. IRWD’s front end documents will be utilized, and Tetra Tech will assess IRWD’s documents to determine any needed Supplemental Special Provisions that should be added to comply with IRWD’s General Provisions and front end requirements. The Project Manual will describe the work, schedule, access or constraints, and sequencing associated with the work. The Project Manual will also include General Technical Specifications, modifications thereto, and any Project Technical Specifications. Tetra Tech will prepare the Project Manual in standard IRWD format. The Project Manual template will be provided in Microsoft Word format. Tetra Tech will complete IRWD templates and shall provide a searchable PDF file of the bidding documents in 8-1/2-inch x 11-inch paper size.
- N. Improvement Plan Sheet List:** Tetra Tech has prepared the below anticipated list of construction drawings.
- O. Construction Drawings:** Tetra Tech will prepare detailed Drawings on 22-inch x 34-inch paper size. The Drawings will be developed in the latest version of AutoCAD, using NCS V4.0 layering standards, and utilizing IRWD’s standard border template. Drawings prepared in AutoCAD shall use the NAVD 88 and NAD 83 survey standards. The Drawings will include a sheet index/location map/legend, general notes, index map, notes and details construction sequencing, site plan, details, sections, elevations, and all details necessary for the construction of the Project.

Sheet No.	Title
1	Title Sheet
2	Sheet Index, Location Map, Vicinity Map, Agency and Utility Index
3	General Notes, IRWD Notes, Erosion Control Notes
4	Symbols, Abbreviations, Benchmark and Basis of Bearings
5	Construction Notes
6	Horizontal Control Sheet

Sheet No.	Title
7	Area Classification Plan and Section
8	Process Flow Diagram and Pump Control Elevation
9	Construction Sequence
10	Typical Traffic Control Plan (refer to WATCH Manual)
11	Demolition Plan and Section
12	Demolition Details
13	Civil Site Plan
14	Pipeline Plan and Profile
15	Pipeline Plan and Profile
16	Bypassing Plan and Details
17	Connection and Lateral Details
18	Pipeline Details
19	Civil Details
20	Miscellaneous Details
21	Structural General Notes
22	Structural Special Inspections
23	Structural SWPS-3 Modification Bottom Plan
24	Structural SWPS-3 Modification Roof Plan
25	Structural SWPS-3 Sections
26	Structural Standard Details
27	Structural Details
28	Structural Details
29	Submersible Pump Station Mechanical Plan
30	Submersible Pump Station Mechanical Section
31	Mechanical Details
32	Mechanical Details
33	Mechanical Details
34	Electrical Symbols and Abbreviations
35	Electrical Site Plan
36	Electrical Power Plan BLS
37	Electrical Power Plan SWPS-3
38	Electrical I&C BLS
39	Electrical I&C SWPS-3
40	Electrical Lighting and Grounding Plan
41	Electrical Single Line Diagram
42	Electrical Conduit and Panel Schedule
43	Electrical Motor Schematics
44	Electrical Details
45	Building and Electrical Modifications to Adjacent Building
46	I&C Symbols
47	P&ID
48	P&ID
49	Control Panel Details
50	PLC Network Details

- P. Project Schedule:** Tetra Tech will prepare and update the Project Schedule for each Design Deliverable. The project schedule will include design, bid, and construction phases, Contractor's Notice-of-Award and Notice-to-Proceed, review and acceptance of Contractor's Submittals, delivery of critical materials and equipment, IRWD's holidays, and construction close out.
- Q. Opinion of Probable Construction Cost:** Tetra Tech will prepare a detailed and itemized opinion of probable construction cost for the proposed improvements, which will be updated and submitted with each of the design deliverables described below.
- R. Design Deliverables:** Tetra Tech will present each submittal with IRWD staff in a meeting. Drawings and Project Manual will be transmitted via email (PDF file) to IRWD for review at the 30%, 60%, 100%, and Final Design Submittals.
1. **30% Draft Submittal:** Provide a 30% Drawing set showing plans, sections, and special details. Show concepts of each discipline such as Civil, Structural, Mechanical, and Electrical to discuss and review design criteria, design requirements, and potential conflicts to resolve. Equipment layouts on plan and section will be included in the submittal as well. A high-level plan and profile will be included showing all lateral connections and connection to SWPS-3 and their designed elevations.  
  
Include the table of contents for Special Provisions, General Requirements, and Project Technical Specifications Parts 1 and 2 for review.
  2. **60% Draft Submittal:** Provide a 60% Drawing set further developing the plans, profiles, sections, and details. Drawings will include all sheets, plans, sections, details, schematics, and diagrams for each discipline of the Project. Provide a 60% Project Manual including all sections. Searchable PDF files of the Drawings and Project Manual will be submitted.
  3. **100% Design Submittal:** Provide a 100% Drawing set, be QA/QC'd by Tetra Tech, with Tetra Tech's Project Engineer electronic stamp and signature, and including IRWD's signatures on the Drawings. Provide a 100% Project Manual, be QA/QC'd by Tetra Tech, and with Tetra Tech's Project Engineer electronic stamp and signature on the signature page. Searchable PDF files of the Drawings and Project Manual will be submitted.
  4. **Final Design Submittal:** Provide a Final Drawing and Project Manual draft set to be backchecked for inclusion of all previous comments prior to adding the Executive Director's electronic signature on the cover sheets of the Drawings and Project Manual. Once the submittal is reviewed and minor comments addressed by Tetra Tech, the Final Design Submittal set will be submitted to be signed by IRWD. Tetra Tech will provide AutoCAD files for the entire Drawing set once signed by the Executive Director. Provide Microsoft Word files used in the preparation of the Project Manual. Searchable PDF files of the Drawings and Project Manual will be submitted. One (1) hard copy of the Drawings and Project Manual will be provided after backcheck is complete and signed by IRWD's Executive Director.

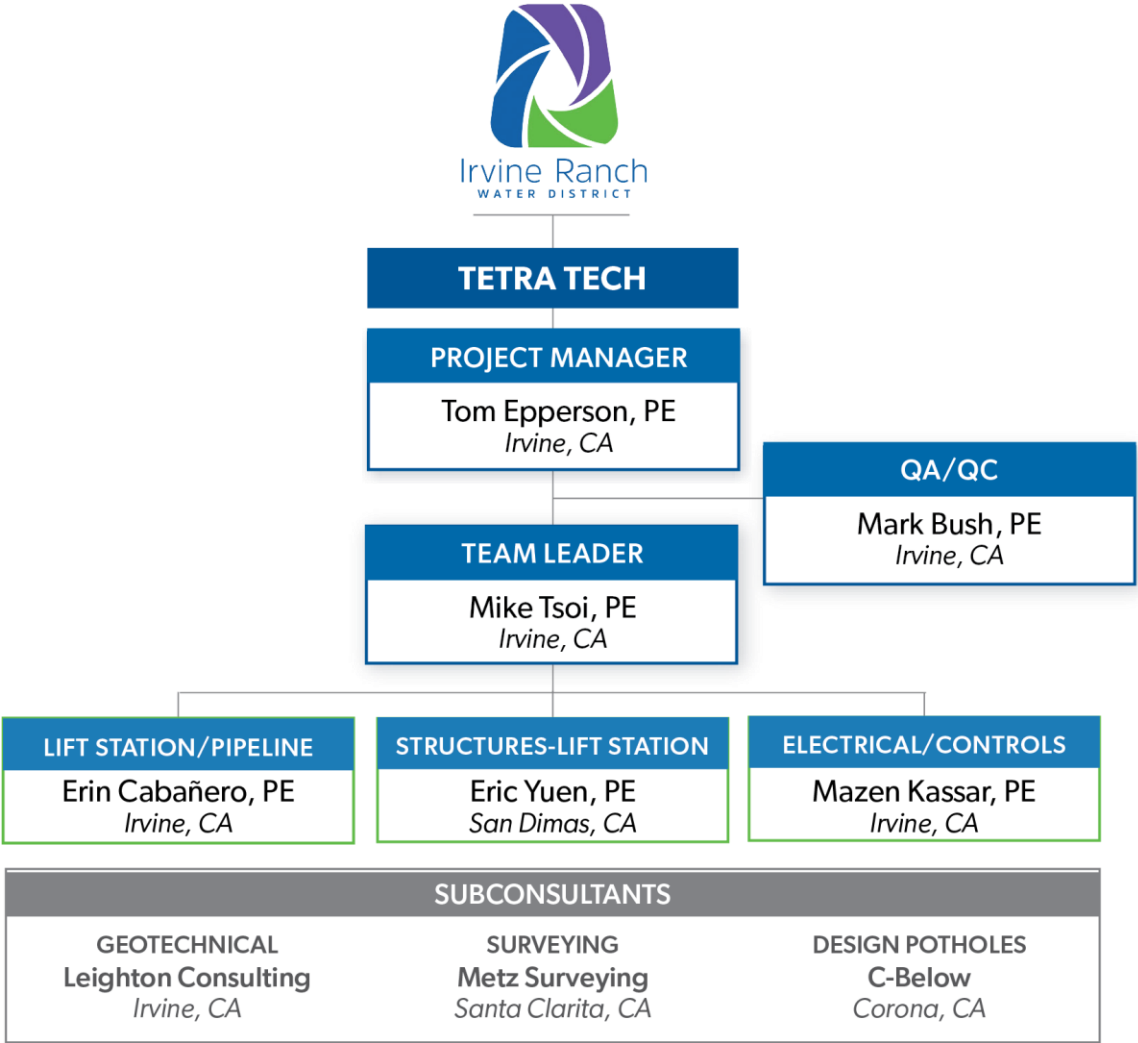
### Optional Task 3: Bid Period Assistance

- A. Bid Period Assistance:** During the bidding period, Tetra Tech will assist with providing information and clarification of bid documents to prospective bidders. This will include the preparation of one addendum for bidding, including revisions to the design plans and specifications and assistance with addressing bidder questions. At a minimum, addenda preparation activities will include:
1. **Plan Revisions:** Tetra Tech has budgeted 16 hours of appropriate staff time for plan revisions to the construction drawings.
  2. **Specification Revisions:** Tetra Tech has budgeted 16 hours of appropriate staff time for revisions or additions to the project specifications.
  3. **Bidder Questions:** Tetra Tech has budgeted 16 hours of appropriate staff time to address and respond to bidder questions.
  4. **Pre-bid Meeting:** Tetra Tech will attend a pre-bid meeting, which may include a site visit with the potential bidding contractors.

**PROJECT TEAM**

The key for success on this project is the project team we have assigned and their previous lift station and pump station experience. As with past assignments for IRWD, we propose to approach this assignment with a spirit of partnership with IRWD. This will enable us to combine the knowledge, ideas, and talents of IRWD’s staff with our planning, design, and construction experience to provide extraordinary results.

P R O J E C T T E A M C H A R T



Our Project Team is devoted to completing your project within schedule and under budget, and not only meet, but exceed your expectations. Resumes for each individual are available upon request, however all of our Project Team members have worked on previous projects for the District. The following summarizes the qualifications of key staff members that will be assigned to this project:

**Project Manager: Tom Epperson, PE**, will be the Project Manager and will provide the overall project direction, technical oversight, quality management, and ensure that the necessary resources are committed to Mike Tsoi in order to get the job done. Tom has more than 42 years of experience and will provide his technical expertise to assist the design team in the areas of constructability, specifications, review and as-needed project management support. **Tom has worked on more than 25 different projects for IRWD.** He has been involved in the design of all of the similar projects listed within the Experience Section of this proposal.

**QA/QC: Mark Bush, PE**, has more than 28 years of professional experience in water, wastewater and recycled water engineering; and has been involved in more than 15 IRWD projects throughout his career.

**Team Leader: Mike Tsoi, PE**, will lead as technical support to the design team due to his previous experience on IRWD’s Peters Canyon Channel Water Capture and over 15 pump station/lift station projects for the District.

**Lift Station/Pipeline: Erin Cabañero, PE**, will be the lead design engineer for the lift station and pipeline. She has played similar roles on the majority of the latest IRWD projects completed by Tetra Tech.

**Structural: Eric Yuen, PE, SE**, will assist our Project Manager and direct the activities of other members of the design team in the capacity of the Structural Team Leader. For the past 16 years Eric has been involved in the structural design of the majority of our pump station structures.

**Electrical/Controls: Mazen Kassar, PE**, will assist our Project Manager and direct the activities of other members of the design team in the capacity of the Electrical Task Leader. At Tetra Tech, Mazen has been responsible for the design of electrical systems for the majority of all of our water/wastewater facilities in Southern California.

In order to provide the full range of services required for this project, we have added several subconsultants to our Project Team. Tetra Tech will be responsible for coordinating and integrating the efforts of each subconsultant. They will serve IRWD as subconsultants to Tetra Tech.

Surveying: Metz Surveying (DIR Registration #: 1000045062)  
Geotechnical Investigation: Leighton Consulting (DIR Registration #: 1000007443)  
Design Potholes: C-Below (DIR Registration #: 1000003150)

## SEWER LIFT STATION EXPERIENCE

The following is a summary of the various lift station projects that members of our Project Team have designed during the last twenty (20) years.

### New Lift Stations

**City of Santa Ana San Lorenzo Lift Station:** replace an existing submersible lift station with a masonry building containing a separate electrical/control room, dry pit housing the pumps/motors, odor control facilities, emergency bypass facility, meter, grinders, and emergency generator.

**El Toro Water District Oso Lift Station:** while maintaining existing lift station in service, constructed a new 10-foot diameter wetwell containing two submersible pumps, valve vault with check valves and meter, emergency bypass connection, new electrical/control equipment, backfilled existing dry pit with slurry and located emergency generator on top of structure, and emergency overflow connection to MNWD sewer within El Toro Road.

**NAVFAC Package 2 (Camp Pendleton) Replacement Lift Station:** consists of a new wetwell, submersible pumps, valve vault, and emergency generator. The existing lift station must remain in operation, without interruption, throughout the construction of the new lift station.

**NAVFAC Coronado Sewer Pump Station Replacement (Coronado):** replaced three (3) existing submersible pumps with new above ground packaged pumping station, including adding a back-up natural gas emergency pump, bypass pumping facilities, and re-coating of the existing wetwell.

### Upgrade Existing Lift Stations

**NAVFAC Package 1 (Camp Pendleton) Upgrades:** upgrade nine (9) existing lift stations including addition of emergency generators, adding new grinders, improve SCADA capabilities, and site safety improvements.

**NAVFAC Package 2 (Camp Pendleton) Upgrades:** upgrade two (2) existing lift stations including addition of emergency generators, improve SCADA capabilities, and site safety improvements.

**Long Beach Water Department Pump/Motor/Valves Upgrades:** Tetra Tech designed the replacement of pumps/motors, valves, and added a bypass connection at the S-25 Lift Station.

As you can see, the design experience of our Project Team covers all your project objectives which will allow our team to supply the District with the available options and provide recommendations for the complete design in the most cost-effective manner. Additionally, with our previous project experience for the District and the design-build experience with the Navy, we have a significant understanding of the importance of an “operator friendly facility” design.

## SUBMERSIBLE PUMP EXPERIENCE

The following lists several projects completed by our Project Team with wetwell facilities and submersible pumps:

**ETWD Oso Lift Station Improvements:** constructed new 10-foot diameter wetwell containing two submersible pumps, valve vault with check valves and meter, and new electrical and control equipment.

**IRWD's Peters Canyon Channel Water Capture:** three diversion structures, each with 6-foot ID precast concrete wetwell (20 to 25-feet deep); dual submersible pumps with slide rail disconnect assemblies; valve vault (check and gate valves); meter vault; and electrical and control equipment.

**OCWD's Burris Pump Station:** included a packaged lift station including wetwell, dual submersible pumps with guide rail system, valve vault and electric/control equipment.

**NAVFAC Package 2 Replacement Lift Station:** new wetwell, submersible pumps, valve vault and emergency generator.

## SIMILAR PROJECTS

During the last twenty (20) years, members of our Project Team have been involved in the design and/or construction of more than twenty (20) sewer lift station projects for various Southern California agencies. The following is a brief summary of most of our completed lift station projects:

LIFT STATION FACILITIES COMPLETED BY PROJECT TEAM		
Client	Project Name	Design Complete
City of Santa Ana	San Lorenzo Lift Station	Under Construction
El Toro Water District	Oso Lift Station Improvements	2021
NAVFAC Southwest	Camp Pendleton Sewer Lift Station Package #1	2014
NAVFAC Southwest	Camp Pendleton Sewer Lift Station Package #2	2014
NAVFAC Southwest	Naval Base Coronado Sewer Lift Station	2013
Moulton Niguel Water District	Lower Salada Lift Station Oxygenation Upgrades	2008/2006/2000
Moulton Niguel Water District	Upper Salada Lift Station Oxygenation Upgrades	2007/2006
South Coast Water District	Sewer Lift Station Evaluation	2007
City of San Clemente	Cypress Shores Lift Station	2007
City of San Clemente	La Pata Lift Station	2007
Moulton Niguel Water District	Del Avion Lift Station Pump/Motor Replacement	2006
South Coast Water District	Blue Lagoon Lift Station	2006
Long Beach Water Department	S-25 Lift Station Modifications	2004
Moulton Niguel Water District	Regional Lift Station Pump/Motor Replacement	2004/2000
Long Beach Water Department	S-25 Lift Station Modifications	2004
Moulton Niguel Water District	Upper Boundary Oak Lift Station Expansion	2003
Moulton Niguel Water District	Aliso Creek Lift Station Upgrades	2002
Irvine Ranch Water District	Coastal Ridge Lift Station	2002

## REFERENCES

Based on the work we have previously performed for the District; we believe the District is one of our best references. Our Project Team knows the District’s design requirements, preferred materials, operational preferences, electrical and P&ID strategies which allow us to deliver a complete design in the most cost-effective manner. Members of our Project Team have been involved with the following lift station/pump station/well projects for IRWD during the last twenty (20) years:

- Zone 8 to 9 Booster Pump Station
- Well 78, Well 107 and Well 115 Replacements
- South County Zone 1-3 Booster Pump Station
- Shady Canyon Zone B BPS
- Shady Canyon Booster Pump Station
- Peter Canyon Reuse Pipeline
- Booster Pump Station Check Valve Replacement
- IDP Wellhead Facilities
- Coastal RW Pump Station Modifications
- Coastal Ridge Lift Station

Our goal is to continue to provide the same high-quality service the District deserves on this project as well.

## SATISFIED CLIENTS

**Client satisfaction is a major objective for Tetra Tech.** This commitment to our clients has earned us the privilege of providing continuous service to several of our below listed references. We believe that our clients will attest to our technical experience and responsive staff, and we encourage you to contact our references to verify our past performance firsthand.

<b>City of Santa Ana</b> <b>Armando Fernandez, PE</b> 714/647-3316 afernandez@santa-ana.org 2 Lift Stations	<b>El Toro Water District</b> <b>Dennis Cafferty, PE</b> 949/837-7050 dcafferty@etwd.com Oso Lift Station	<b>Orange County Water District</b> <b>Mike Markus, PE</b> 714/378-3305 mmarkus@ocwd.com 2 Pump Stations and Well Injection	<b>Moulton Niguel Water District</b> <b>Rodney Woods, PE</b> 949/425-3547 rwoods@mnwd.com 8 Lift Station Upgrades 2 Lift Station Evaluations	<b>NAVFAC Southwest</b> <b>Allan Tomayo</b> 619/545-8020 3 Lift Stations
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## SCHEDULE

Tetra Tech has reviewed current and planned workload schedules for our Project Team and are available to immediately begin work on this project. The following presents our proposed project schedule:

Milestone	Key Milestone Dates
Notice of Award/Notice-to-Proceed	September 26, 2023
Kick-off Meeting	September 28, 2023
30% Draft Submittal	November 28, 2023
60% Draft Submittal	January 30, 2024
100% Design Submittal	March 5, 2024
Final Design Submittal	March 26, 2024
Construction Bid Advertising	April 2024
Bid Opening	May 2024
Construction Award	May 2024

It is our opinion that the critical path will be selecting the proposed alignment for the pipelines. The scheduling of the pothole work will be on the critical path.



## **BUDGET/MISCELLANEOUS**

**BUDGET:** As requested in the RFP, Tetra Tech has included our budget proposal in a separate PDF file. Our budget proposal includes estimated hours per task, subconsultant costs, reproduction, and other direct costs. We have also included our proposed Hourly Rate Schedule and a not-to-exceed amount for each phase of the work.

**JOINT VENTURE:** No joint ventures will be used on the project.

**CONFLICT OF INTEREST:** No Conflicts of Interest between the District and Tetra Tech exist.

**CONTRACT:** Tetra Tech will sign IRWD's Professional Services Agreement.

**INSURANCE:** Tetra Tech has insurance coverage in the limits required in the RFP. A copy of our insurance documentation can be provided.



September 7, 2023

Nhan Mai, PE  
Project Manager  
Irvine Ranch Water District, Engineering Operations Support  
3512 Michelson Drive  
Irvine, CA 92612

Transmitted via email: mai@irwd.com

**Reference: Fee Proposal for Engineering Design Services for the  
Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline**

Dear Mr. Mai,

Tetra Tech is pleased to submit our fee proposal to provide engineering design services for the Michelson Water Recycling Plant Biosolids Lift Station and Sewer Pipeline project. All work will be performed on a time and material basis “not-to-exceed” the contract price and no additional compensation will be received beyond the price negotiated to be performed unless changes are approved in advance by an amendment to our contract signed by the Irvine Ranch Water District.

Attached is our work plan with a breakdown of labor hours by employee billing classification, together with the cost of non-labor and subconsultant services. The attached rate schedule includes Tetra Tech’s billing rates for this project for all classifications of staff likely to be involved in the project; as well as overhead, profit, and expenses.


Tetra Tech appreciates the opportunity to submit our fee proposal and looks forward to your positive response. Should you require additional information or have any questions regarding our submittal, please don’t hesitate to contact us.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Tom Epperson', with a long horizontal flourish extending to the right.

Tom Epperson, PE  
Vice President

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 <b>Price Proposal</b>		Labor Plan															Price Summary / Totals				
		15 Resource															Task Pricing Totals		364,000		
<b>MWRP Biosolids Lift Station and Sewer Pipeline</b>		340.00	340.00	170.00	170.00	140.00	125.00	130.00	260.00	155.00	148.00	125.00	305.00	170.00	125.00	225.00	Specify Add'l Fees on Setup		0		
		QA/QC	Project	Civil/Mech	Civil/Mech	Civil/Mech	Civil/Mech	Project	Structural	Structural	Structural	Structural	Electrical	Electrical	Electrical	Traffic Control	Technology Use Fee				
Submitted to: Irvine Ranch Water District (Attn: Nhan Mai, PE)																	<b>Total Price</b>			<b>364,000</b>	
Contract Type: T&M																	<b>Pricing by Resource</b>				
		Principal in Charge (Mark Bush)	Project Manager (Tom Epperson)	Project Engineer (Mike Tsou)	Lead Engineer (Erin Cabanero)	Design Engineer (Norma Pablo)	Design Engineer/CADD (Patrick Kol)	WP (Deana Escamilla)	Structural Project Manager (Eric Yuen)	Structural Engineer (Jose Quiroz)	Structural Design/Cadd (Eric Hutchins)	Structural Designer (Miguel Maggontay)	Electrical Project Manager (Mazen Kassar)	Electrical Project Engineer (Doug Seaman)	Electrical Design Engineer (James Roberts)	Traffic Control Lead (Peter Kim)	Labor	Subs	ODCs	Task Pricing Totals	
<b>Project Phases / Tasks</b>		<b>Total Labor Hrs</b>	30	40	150	230	260	260	20	40	90	80	40	100	180	320	8	303,990	56,448	3,562	<b>364,000</b>
<b>Task 1: Project Management</b>		<b>166</b>	<b>30</b>	<b>24</b>	<b>22</b>	<b>10</b>	<b>24</b>		<b>4</b>	<b>8</b>				<b>26</b>	<b>10</b>	<b>8</b>	<b>40,390</b>		<b>110</b>	<b>40,500</b>	
Administration (8 months)		8		8													2,720			2,720	
Meetings (9)		32		8	10	10								2	2		7,070		110	7,180	
Electrical/Control On-Site Visits (2)		24											8	8	8		4,800			4,800	
Biweekly email/monthly invoices (16/8)		16		8	8												4,080			4,080	
QA/QC		54	30						8				16				17,160			17,160	
Safety Program		32			4	24		4									4,560			4,560	
<b>Task 2: Final Design</b>		<b>1,616</b>		<b>10</b>	<b>98</b>	<b>204</b>	<b>236</b>	<b>246</b>	<b>16</b>	<b>32</b>	<b>90</b>	<b>80</b>	<b>40</b>	<b>74</b>	<b>170</b>	<b>312</b>	<b>8</b>	<b>251,990</b>	<b>56,448</b>	<b>3,362</b>	<b>311,800</b>
Review Background Material		26			2	4				6	6				4	4	4,690		110	4,800	
Topographic Field Survey		4				2			2								600	6,993		7,593	
Utility Review		22				4	8	8	2								3,060		220	3,280	
Pothole Investigation		12			2	4	4		2								1,840	25,830		27,670	
Geotechnical Review		2			1				1								300	15,225		15,525	
Optional Geotechnical Investigation		2			1				1								300	8,400		8,700	
Structural Evaluation and Calculations		46								6	12		28				6,920			6,920	
Mechanical: hydraulics and pump design		48			8	16	24										7,440			7,440	
Sewer Pipeline Design		20			4	8	8										3,160			3,160	
Electrical		42											6	12	24		6,870			6,870	
Instrumentation and Control		34											6	12	16		5,870			5,870	
Safety Design		26			4	8			2	4		8					4,180			4,180	
CEQA Documentation Support		20			2	8		8	2								2,960		240	3,200	
Project Manual		76		4	16	16			6	4	6			8	8	8	14,350			14,350	
General Sheets (6 shts)		106			6	18	24	58									14,690			14,690	
Area Classification/Process Flow/Sequence (3 shts)		71		1	6	16	24	24									10,440			10,440	
Traffic Control Plan (1 sht)		28				4	8	8								8	4,600			4,600	
Demolition Plans (2 shts)		44			4	8	16	16									6,280			6,280	
Civil Site Plan and Details (3 shts)		69		1	8	16	20	24									10,220			10,220	
Sewer Pipeline P&P and Details (5 shts)		109		1	12	20	36	40									15,820			15,820	
Structural Sheets (8 shts)		148								12	60	76					23,668			23,668	
Mechanical Sheets (5 shts)		119		1	12	30	36	40									17,520			17,520	
Electrical Sheets (11 shts)		276											32	80	164		43,860			43,860	
I&C Sheets (5 shts)		136											16	40	80		21,680			21,680	
Building/Electrical Modifications (1 sht)		42			2	6	8	8					4	6	8		6,720			6,720	
Project Schedule/Construction Cost		52		2	4	8	8			2	2	4	4	2	8	8	8,732			8,732	
Deliverables/Processing		36			4	8	12	12									5,220		2,792	8,012	
<b>Task 3: Optional Bid Period Assistance</b>		<b>66</b>		<b>6</b>	<b>30</b>	<b>16</b>	<b>14</b>										<b>11,610</b>		<b>90</b>	<b>11,700</b>	
Plan revisions (16 hours)		16				4		12									2,180			2,180	
Specification revisions (16 hours)		16			8	8											2,720			2,720	
Bidder Questions (16 hours)		16		2	10	4											3,060			3,060	
Pre-bid Meeting		4			4												680			680	
Preparation of one Addendum		14		4	8			2									2,970		90	3,060	
<b>Totals</b>		<b>1,848</b>	<b>30</b>	<b>40</b>	<b>150</b>	<b>230</b>	<b>260</b>	<b>260</b>	<b>20</b>	<b>40</b>	<b>90</b>	<b>80</b>	<b>40</b>	<b>100</b>	<b>180</b>	<b>320</b>	<b>8</b>	<b>303,990</b>	<b>56,448</b>	<b>3,562</b>	<b>364,000</b>



**2024**

**HOURLY CHARGE RATE AND EXPENSE REIMBURSEMENT SCHEDULE**

**Project Management**

Project Manager 1	\$225.00
Project Manager 2	\$260.00
Sr Project Manager	\$305.00
Program Manager	\$340.00
Principal in Charge	\$340.00

**Construction**

Construction Project Rep 1	\$80.00
Construction Project Rep 2	\$87.00
Sr Constr Project Rep 1	\$103.00
Sr Constr Project Rep 2	\$118.00
Construction Manager 1	\$168.00
Construction Manager 2	\$190.00
Construction Director	\$238.00

**Engineers**

Engineering Technician	\$80.00
Engineer 1	\$115.00
Engineer 2	\$125.00
Engineer 3	\$140.00
Project Engineer 1	\$155.00
Project Engineer 2	\$170.00
Sr Engineer 1	\$175.00
Sr Engineer 2	\$185.00
Sr Engineer 3	\$225.00
Principal Engineer	\$305.00

**General & Administrative**

Project Assistant 1	\$68.00
Project Assistant 2	\$77.00
Project Administrator	\$97.00
Sr Project Administrator	\$130.00
Sr Graphic Artist	\$154.00
Technical Writer 1	\$100.00
Technical Writer 2	\$126.00
Sr Technical Writer	\$158.00

**Planners**

Planner 1	\$106.00
Planner 2	\$118.00
Sr Planner 1	\$128.00
Sr Planner 2	\$154.00
Sr Planner 3	\$178.00

**Information Technology**

Systems Analyst / Programmer 1	\$78.00
Systems Analyst / Programmer 2	\$118.00
Sr Sys Analyst / Programmer 1	\$132.00
Sr Systems Analyst / Programmer 2	\$200.00

**Designers & Technicians**

CAD Technician 1	\$66.00
CAD Technician 2	\$77.00
CAD Technician 3	\$92.00
CAD Designer	\$102.00
Sr CAD Designer 1	\$128.00
Sr CAD Designer 2	\$148.00
CAD Director	\$153.00
Survey Tech 1	\$51.00

**Project Accounting**

Project Analyst 1	\$92.00
Project Analyst 2	\$118.00
Sr Project Analyst	\$158.00

**Reimbursable In-House Costs:**

- Photo Copies (B&W 8.5"x11")
- Photo Copies (B&W 11"x17")
- Color Copies (up to 8.5"x11")
- Color Copies (to 11"x17")
- Compact Discs
- Large format copies

**Health & Safety**

H&S Administrator	\$97.00
Sr H&S Administrator	\$118.00
H&S Manager	\$148.00

- Mileage-Company Vehicle
- Mileage-POV

\*current GSA POV mileage rate subject to change

All other direct costs, such as production, special photography, postage, delivery services, overnight mail, printing and any other services performed by subconsultant will be billed at cost plus 15%.