

# **AGREEMENT FOR ENGINEERING AND DESIGN SERVICES FOR LAKE COUNTY SANITATION DISTRICT (LACOSAN) FULL CIRCLE EFFLUENT PIPELINE AN UPDATE TO THE 2004 PRELIMINARY DESIGN REPORT**

This Agreement is made and entered into by and between the County of Lake, hereinafter referred to as "County", and Jacobs Engineering Group Inc., hereinafter referred to as "Consultant," collectively referred to as the "parties".

1. **SERVICES.** Subject to the terms and conditions set forth in this Agreement, Consultant shall provide to County the services described in the Scope of Services attached hereto and incorporated herein as Exhibit A at the time and place and in the manner specified therein. In the event of a conflict in or inconsistency between the terms of this Agreement and Exhibits A/B/C, the Agreement shall prevail.

2. **TERM.** This Agreement shall commence on \_\_\_\_\_ 20\_\_, and shall terminate on \_\_\_\_\_ 20\_\_, unless earlier terminated as hereinafter provided. In the event County desires to temporarily continue services after the expiration of this Agreement, such continuation shall be deemed on a month-to-month basis, subject to the same terms, covenants, and conditions contained herein.

3. **COMPENSATION.** Consultant has been selected by County to provide the services described hereunder in Exhibit "A" (Scope of Services), attached hereto. Compensation to Consultant shall not exceed three hundred-twenty thousand six-hundred eleven dollars (\$320,611.00).

The County shall compensate Consultant for services rendered, in accordance with the provisions set forth in Exhibit "B" (Fiscal Provisions), attached hereto, provided that Consultant is not in default under any provisions of this agreement. Compensation to Consultant is contingent upon appropriation of federal, state and county funds.

4. **TERMINATION.** This Agreement may be terminated by mutual consent of the parties or by County upon 30-days written notice to Consultant.

In the event of non-appropriation of funds for the services provided under this Agreement, County may terminate this Agreement, without termination charge or other liability. Upon termination, Consultant shall be paid a prorated amount for the services provided up to the date of termination.

5. **MODIFICATION.** This Agreement may only be modified by a written amendment hereto, executed by both parties; however, matters concerning scope of services which do not affect the compensation may be modified by mutual written consent of Consultant and County executed by Special Districts Administrator.

6. **NOTICES.** All notices between the parties shall be in writing addressed as follows:

County of Lake	Jacobs Engineering Group Inc.
Special Districts	2525 Airpark Drive
230 N. Main Street	Redding , CA 96001
Lakeport, CA 95453	Attn: Michael Randall, PE
Attn: Administrator	

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EFFLUENT PIPELINE AN UPDATE TO THE 2004 PRELIMINARY  
DESIGN REPORT**

7. **EXHIBITS.** The Agreement Exhibits, as listed below, are incorporated herein by reference:

Exhibit A – Scope of Services  
Exhibit B – Fiscal Provisions  
Exhibit C – Compliance Provisions

8. **TERMS AND CONDITIONS.** Consultant warrants that it will comply with all terms and conditions of this Agreement and Exhibits, and all other applicable federal, state and local laws, regulations and policies.

9. **INTEGRATION.** This Agreement, including attachments, constitutes the entire agreement between the parties regarding its subject matter and supersedes all prior Agreements, related proposals, oral and written, and all negotiations, conversations or discussions heretofore and between the parties.

Executed at \_\_\_\_\_, California on \_\_\_\_\_.

COUNTY OF LAKE

By: \_\_\_\_\_  
Title: Chair, Board of Supervisors

ATTEST:

By: \_\_\_\_\_  
Susan Parker  
Title: Clerk of the Board

Approved as to Form:

By:  \_\_\_\_\_  
Lloyd Guintivano  
Title: County Counsel

Date: October 1, 2024

CONSULTANT

Jacobs Engineering Group, Inc.

By: \_\_\_\_\_  
John Schoonover  
Title: Manager of Projects

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

By: \_\_\_\_\_  
Michael Randall, P.E.  
Ca. Lic# C81192  
Title: Project Manager

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

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**EXHIBIT “A” – SCOPE OF SERVICES**

**By: Jacobs**

## EXHIBIT “A” – SCOPE OF SERVICES



# LACOSAN Full Circle Effluent Pipeline Project Update to the 2004 Preliminary Design Report

April 17, 2024

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# SPECIAL DISTRICTS

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*Lake County's Water and Wastewater Agency*

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## **ADDENDUM NO. 1**

**March 20, 2024**

**RFP for**

**LACOSAN Full Circle Effluent Pipeline Project  
Update to the 2004 Preliminary Design Report**

This Addendum shall be considered as a part of the RFP documents for the subject project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original documents, this Addendum shall govern and take precedence.

Consultants are hereby notified that they shall make any necessary adjustments in their proposals on account of this Addendum. It will be construed that each proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

Consultants shall acknowledge receipt of this Addendum in the cover letter accompanying their Proposal.

Questions received in conformance with the RFP prior to the 5:00 p.m. March 15, 2024 deadline have been answered and attached as part of this addendum.



\_\_\_\_\_  
Scott Harter  
Special Districts Administrator

\_\_\_\_\_  
March 20, 2024  
DATE

## Questions and Answers

1. What is the funding source / sources for the services outlined in RFP No. 24-21? Is there an identified “not to exceed” budget for these services?
  - a. **The funding source for the project consists of Community Project Funding administered through the EPA and local funding as a match.**
2. Is there a current funding strategy for the implementation of the LACOSAN Full Circle Effluent Pipeline Project beyond the update of the Preliminary Design Report?
  - a. **There is not currently a funding strategy beyond completion of the PDR. It is anticipated that the PDR will result in updated project cost estimates and additional information which will allow for the formation of an implementation plan and funding strategy.**
3. What is the desired / anticipated schedule for completion of the services described in the RFP No. 24-21?
  - a. **There are timelines associated with the funding however the District does not believe those will be limiting in completion of the services. The District understands this is a complex project and it will not be completed quickly, yet the District desires to see ongoing progress towards completion. The timeline and cost will be part of contract negotiations.**
4. Who are the previous Project Partners for the 2004 Preliminary Design Report? Who might some new project partners be for the updated Preliminary Design Report?
  - a. **Calpine Corporation, Northern California Power Agency, City of Lakeport, vineyards and agricultural entities; Potential new partners include other vineyards/agricultural interests, and Open Mountain Energy.**
5. On Page 3 of the PDF under Section 1. Introduction. It is noted that “New technologies have emerged, new pipeline alignments may need to be considered as the highway has shifted, and new partners may want to participate in the potential for beneficial reuse of the treated effluent.”
  - a. Can Lake County briefly elaborate on the referenced shifted highway? **Caltrans recently completed a highway realignment/widening on State Route 29 in Lake County between PM 28.4 and PM 31.5. This work occurred subsequent to the 2004 PDR.**
  - b. Please describe anticipated project stakeholders. Do these stakeholders anticipate these stakeholders differ throughout the LACOSAN Full Circle Effluent Pipeline Project implement phase? **Potential project stakeholders include the City of Lakeport, Calpine, NCPA.**
6. Can Lake County provide any details on the Consultant Selection Board anticipated for RFP No. 24-21?
  - a. **The CSB is composed of a minimum of 5 individuals across a spectrum of departments and representatives from industry relevant stakeholders.**
7. What does Lake County see as the key issues of challenges for the successful completion of the services described in RFP? Same with the overall LACOSAN Full Circle Effluent Pipeline Project completion?

- a. This is a complex project and the consultant will need to have good communication with the various stakeholders to have a full understanding of the vision related to the Full Circle Effluent Pipeline and ensure that the updated PDR provides the information to move the project into the next phases. It's premature to address the potential challenges to a successful implementation/construction of the Full Circle pipeline project at this time.**
- 8. Does the District have a proposed schedule for the proposed project tasks they would like proposers use as a baseline?
  - a. No, the District understands this is a complex project and it will not be completed quickly, yet the District desires to see ongoing progress towards completion. The timeline and cost will be part of contract negotiations.**
- 9. Is there a funding deadline that needs to be considered when developing our proposed project schedule?
  - a. There are timelines associated with the funding however the District does not believe those will be limiting in completion of the services related to this RFP.**
- 10. Are there any additional EPA funding requirements in addition to the Attachment C Financial Assistance Agreement Requirements?
  - a. Not that the District is currently aware of.**





**Challenging today.  
Reinventing tomorrow.**

**Jacobs**  
2525 Airpark Drive  
Redding, CA 96001  
T 530.243.8531  
F 530.243.1654  
[www.jacobs.com](http://www.jacobs.com)

Lake County Sanitation District  
255 N. Forbes Street  
Lakeport, CA 95453

**RE: RFP No. 24-21 | LACOSAN Full Circle Effluent Pipeline Project Update to the 2004 Preliminary Design Report**

Dear Selection Committee Members:

We welcome the opportunity to continue our relationship with the Lake County Sanitation District. In 2004, Jacobs developed the original Full Circle Effluent Pipeline (FCEP) Preliminary Design Report (PDR). The project consisted of 27 miles of pressure pipe and three pump stations to connect the Kelseyville, City of Lakeport, and Middletown WWTPs to the Jacobs-designed Geysers pipeline. The project provided additional recycled water supply to private utility company Calpine, as well as reduced or eliminated the disposal of treated wastewater through the infiltration/evaporation ponds at the Lake County and Lakeport WWTPs. The project also consisted of secondary and tertiary treatment upgrades at each WWTP. The pipeline feeds the geothermal energy generation field operated by Calpine. Local, state, and federal politicians and stakeholders support this beneficial water use, including the EPA, who has allocated funding to execute the PDR update.

**The Jacobs team will be led by Project Manager Michael Randall**, who has worked closely with LACOSAN for the past 12 years on a variety of planning, design, and implementation projects. His familiarity with the District's facilities and operational criteria brings integrated institutional knowledge. Michael will be supported by a team who is familiar with the project and brings conveyance, wastewater treatment, and recycled water expertise. The Jacobs team will provide innovative approaches to reduce operational complexity and maximize integration with the existing infrastructure.

Along with meeting the technical, administrative, and statutory requirements of the RFP, the Jacobs team has formulated success-oriented strategies founded on extensive experience and our knowledge of your expectations. Specifically, our innovative engineering approach addresses the following objectives:

- Minimize operational costs and complexity by focusing on strategic pipeline connections, allowing consolidation of additional treatment systems, if needed.
- Maximize operational reliability to reduce risks by incorporating existing storage and new tank(s) to provide stable operations under varying supplies and demands.
- Minimize impacts to the public and environment by routing new transmission mains within existing publicly owned rights-of-way, as long as the new routes do not interfere with the preceding objectives.

Please contact Michael Randall at 530.945.2961 or [michael.randall@jacobs.com](mailto:michael.randall@jacobs.com) if you have any questions or need additional information. We acknowledge receipt of Addendum No. 1, dated March 20, 2024.

We are excited to continue supporting Lake County Special Districts' implementation of water use resiliency through beneficial reuse within the water basin.

Sincerely,  
Jacobs Engineering Group Inc.

Michael Randall, PE Project Manager	Jerry Dehn, PE Principal-in-Charge



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## 1. Project Understanding

### Project Understanding

The existing Southeast Geysers Effluent Pipeline (SEGEP) was the first of its kind when it linked four regional wastewater treatment plants to deliver treated secondary effluent to the Geysers steam fields for geothermal energy generation. The completed project, in operation for the last 27 years, provides an environmentally safe means to reuse treated wastewater while avoiding discharges to Clear Lake. Simultaneously, the SEGEP helped private utility company Calpine sustain groundwater supplies used for reliable green energy generation.



Figure 1. Geysers facility

The Full Circle Effluent Pipeline (FCEP) project, when implemented, will link the effluent from two additional treatment plants (Kelseyville and Lakeport) to the SEGEP while also adding a new raw water intake from Clear Lake. The FCEP project will allow increased water deliveries to Calpine's steam fields while enhancing opportunities for expanded agricultural irrigation supplies. To accomplish this overarching goal, the FCEP project must address the following objectives:

- **Minimize Operational Costs and Complexity.** Lake County Sanitation District (LACOSAN) has limited resources to operate and maintain multiple complex treatment and conveyance systems.
- **Minimize Risks.** The completed FCEP project must allow for safe and reliable conveyance of treated wastewater to Calpine and agricultural users while conforming to water quality regulations for wastewater disposal.
- **Minimize Impacts to the Public.** A new effluent transmission main will likely cause temporary impacts to private land owners during construction and could potentially impact the value of parcels encumbered by permanent utility easements.

Jacobs will use the following approach to accomplish these objectives:

- Strategically align new pipeline connections to allow consolidation of additional treatment, if needed, into a single treatment plant (Middletown WWTP), minimizing operational complexity and related operational costs, compared to retrofitting multiple treatment works.
- Determine the need for additional treatment and, if deemed necessary, select tertiary treatment systems that are time tested for treating algae-laden effluent streams.
- Develop conveyance alternatives that address risks due to transient conditions in the conveyance pipelines.
- Identify SCADA alternatives that provide reliable communication and control capabilities from remote locations.
- Use storage tanks and ponds to allow stable operations under varying supplies and demands.
- Analyze pipeline routing alternatives that minimize the need for easements, while balancing construction costs and operational needs of the transmission pipelines. New pipelines will be routed along public roadways wherever feasible. Route alternatives will also address the potential for agricultural reuse.

### Familiarity with Project Area

LACOSAN owns and operates five wastewater systems:

1. Northwest Regional System
2. Southeast Regional System
3. Middletown System
4. Kelseyville System
5. South Lakeport System

The SEGEP currently conveys approximately 8.5 million gallons per day (mgd) of water from the Southeast Regional WWTP reservoir to the Geysers geothermal wellfields. The source of this water is a combination of wastewater treatment plant effluent from the Northwest Regional, Southeast Regional, and Middletown WWTPs, and the Clearlake Oaks WWTP, owned and operated by the Clearlake Oaks County Water District. The treatment plants are permitted under the waste discharge requirement (WDR), which prohibits discharge of effluent into receiving waters, and all effluent must be disposed of through the SEGEP system.



**Figure 2.** Southeast effluent channel

As the effluent flow from the four WWTPs currently connected to the SEGEP is normally less than the 8.5-mgd conveyance demand of the SEGEP for geothermal reuse while disposing all the effluent, water from Clear Lake is used as make-up water. This is possible via a water supply agreement with Yolo County that restricts both annual and monthly water usage from Clear Lake. In addition to use restrictions, lake water cannot be used during certain low lake (drought) conditions. During these conditions, water flow to the Geysers geothermal wellfields will be significantly reduced. For LACOSAN, the difference between the wastewater flows from these four WWTPs and the Geysers geothermal wellfields' demand presents an opportunity to reliably dispose of the effluent from other LACOSAN WWTPs, which in turn minimizes the need for make-up water from Clear Lake.

### FCEP

The FCEP project will inject additional treated wastewater effluent into the SEGEP system, which will provide reliable effluent disposal for the Kelseyville and Lakeport WWTPs. The FCEP will also potentially provide an additional lake water intake pump station, a second source of make-up water from Clear Lake. The addition of the FCEP will provide increased reliability and redundancy through higher flows to the Geysers geothermal wellfields during drought conditions as well as a redundant lake intake.

### We prepared the FCEP project preliminary design report (PDR) in 2004.

This update will incorporate current effluent flow data, land use, and project drivers to develop preliminary design concepts and criteria. The project consists of

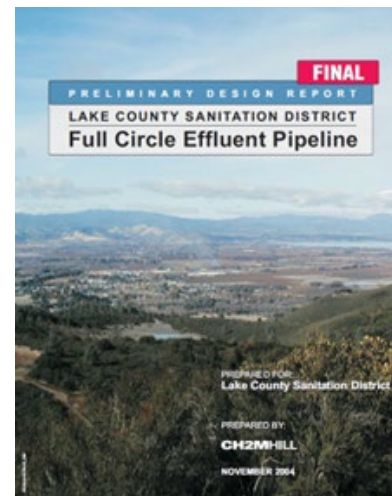
approximately 27 miles of pressure pipe and three pump stations to convey wastewater effluent from the Kelseyville, City of Lakeport, and Middletown WWTPs to the existing Jacobs-designed Southeast Geysers Pipeline. Secondary and tertiary treatment upgrades will be needed at each treatment plant to meet water quality requirements in the FCEP to meet the reuse needs, including potential agricultural users and the geothermal energy generation field operated by Calpine. The project provides additional reclaimed water supply to Calpine, as well as reduces or eliminates the disposal of treated wastewater through the infiltration/evaporation ponds at the Lake County and City of Lakeport WWTPs. This beneficial use is supported by local and state stakeholders to work toward a more sustainable water basin. The Environmental Protection Agency (EPA) has allocated funding to execute the PDR update.

The updated PDR will evaluate the treatment needs at the three existing wastewater treatment facilities that are planned to be added to the SEGEP and will determine the best-value method to the treatment process approach to provide recycled water to Calpine's Geysers facility. Evaluation will include:

- General plant design features
- Process treatment selection
- Design influent flows and loads
- Effluent quality
- Current plant flows
- Current waste discharge requirements and permits

This update will evaluate the flow capacity and alignment route study evaluation to address changes in land use and traffic patterns since the 2004 report. We will validate alternatives and technologies that have come to the market since the 2004 report was conducted.

Bearing in mind new technologies and current project drivers, we will consider project alternatives for final use of the



treated effluent, such as connection to the existing SEGEP, agricultural irrigation uses in the Big Valley area, and alternative effluent pipeline to different geothermal energy producers. We will identify and describe features and requirements of the various components of the effluent pipeline and develop alternatives, where appropriate, for those components.

### Familiarity with the Creation of PDRs

Jacobs has created numerous PDRs for a variety of clients. We are experienced in validating design criteria for projects as well as documenting design parameters, client standards, and construction methods. We create PDRs to be used as working documents that serve as guides as design progresses. We have first-hand knowledge of LACOSAN and the project area, having created the original PDR for the FCEP project in 2004.

### Similar Experience

Our team has vast experience delivering similar services on relevant projects for comparable localities and local agencies in accordance with federal, state, and local agency requirements. These projects demonstrate our ability to address a variety of challenges, such as schedule requirements, funding, construction sequencing, permit compliance, trenchless crossings, traffic control, agricultural landscapes, and the interests of the stakeholders.

Please see Section 4 for detailed information on a few of our relevant projects.

#### Jacobs Proof: Geysers Recharge Project City of Santa Rosa, CA

Services provided include project development, preliminary and final design, geotechnical engineering, and construction management for a 64-km, 750- to 1,200-mm diameter reclaimed water pipeline from Santa Rosa's Laguna Treatment Plant up 900 m to the Geysers steam field.

The project included four pump stations, three of which produce high pressures (exceeding 34 bar). The design incorporated unusually restrictive noise and visual constraints, which affected almost every aspect of pump station design and construction. The alignment involved 10 stream and river crossings (two at Russian River), as well as three roadway, three railroad, and two aqueduct crossings. Though not with Jacobs at the time, Rod Houser, our proposed Conveyance Lead for this project, served as project engineer for Santa Rosa's Llano pump station and Windsor-Geysers pump station. He also authored the Geysers facilities plan.

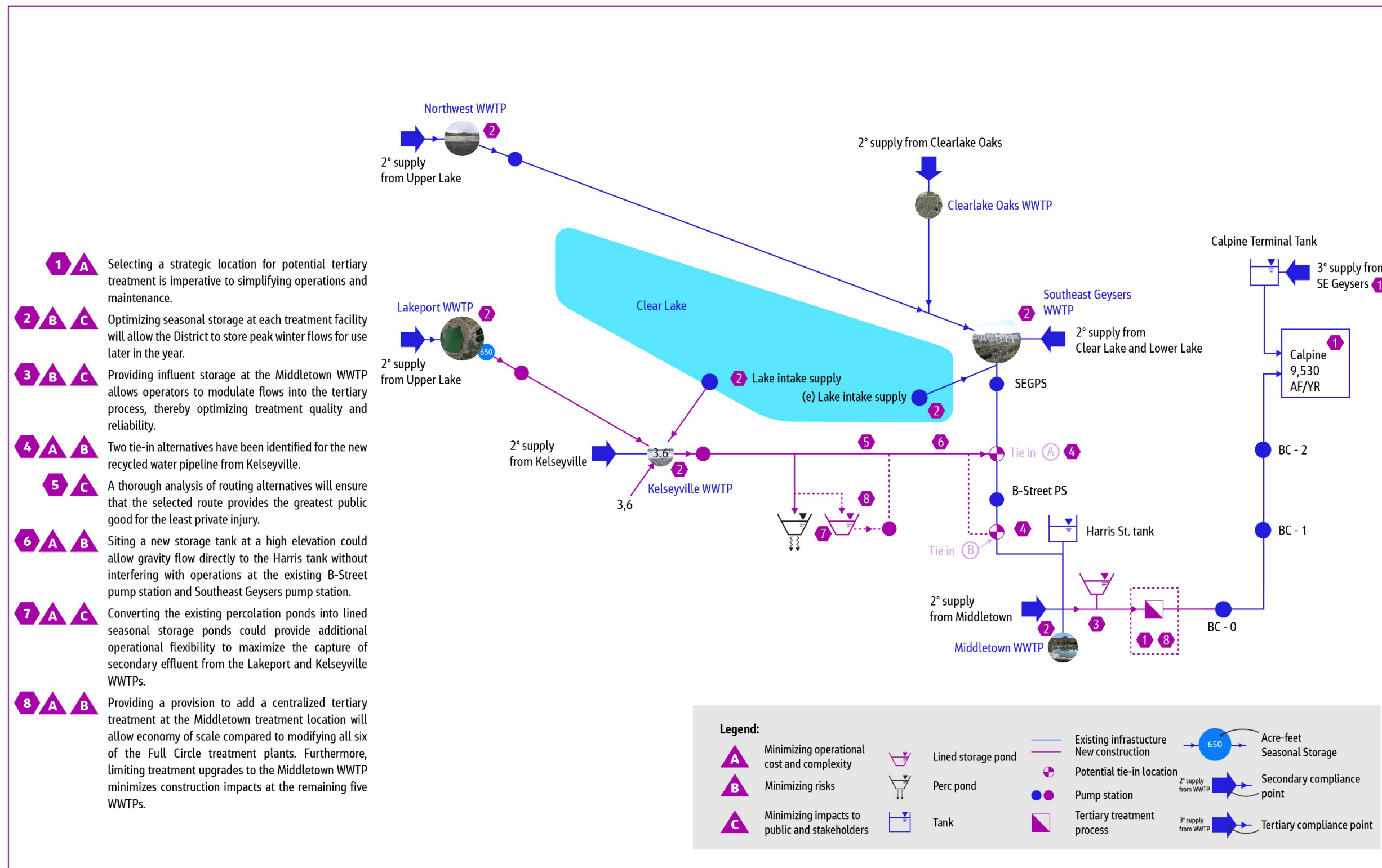




## Critical Issues

Previous reports contemplated various forms of treatment to achieve the desired water quality in the effluent. The options considered in earlier studies generally assumed additional treatment would be added to each treatment facility. As the intended use of recycled water at the Geysers prompts the potential need to upgrade the treatment processes to disinfected tertiary recycled water, additional issues are emerging. Figure 3 illustrates our approach to addressing these issues in achieving the objective of the FCEP, which are further discussed in the following pages.

**Figure 3. Jacobs' Approach to Address Critical Issues in Achieving FCEP Objectives.**



### Critical Issue 1: Aligning Pipeline Connections for Potential Tertiary Facility

The existing SEGEP sends secondary effluent to the Geysers, while the geothermal facility also receives tertiary-treated recycled water from Santa Rosa. Though LACOSAN is not required to provide tertiary-treated recycled water, strategic alignment of pipeline connections for a potential future upgrade will be desirable for a cost-effective and flexible long-term solution, as we know placing a tertiary treatment facility at each plant will not only be a significant cost burden, but is also operationally impractical for LACOSAN.

#### Our Solution

We recommend setting the base option to combining secondary effluent at a location with sufficient temporary diversion for off-spec flow at the Middletown WWTP, located halfway up on the existing SEGEP conveyance line. Other options include considering pipeline alignment optimized for the hydraulics and, if needed, placing more than one tertiary treatment facility. The location and availability of equalization/diversion basins make the Middletown WWTP the easiest target for centralized tertiary treatment facility siting. The use of lagoon-treated secondary effluent in the production of tertiary treated wastewater, while permissible, presents operational challenges in providing consistent quality to feed the tertiary filtration and disinfection processes, particularly the turbidity. If the upgrade of the Kelseyville WWTP secondary treatment system is preliminarily selected to be a Rich Lagoon system, we recommend additional monitoring for characterization of secondary effluent to properly assess potential inclusion of an additional treatment process upstream of the tertiary treatment. In a recent Jacobs project for a small-scale recycled water system design at Fort Hunter Liggett, we included dissolved air flotation as the pretreatment before the filtration and disinfection processes to address potentially high suspended solids and algae in the tertiary treatment feed.

The other challenge with a potential treatment process upgrade is the difficulty in predicting future effluent flow conditions due to the loss of residential homes in wildfires and pace of rebuilding. The consolidated treatment system option at the Middletown WWTP will allow LACOSAN to defer the decision on the treatment upgrade needs and treatment capacity determination.

### Critical Issue 2: Minimizing Total Project Costs While Providing the Greatest Public Benefit

An estimate of life cycle costs will be prepared for each design concept. Accordingly, the estimates will consider the following costs:

- Initial capital
- Right-of-way
- Recurring energy
- Recurring maintenance
- Periodic equipment replacement
- Recurring payments from Calpine and irrigators

Life cycle costs will be incorporated into a triple bottom line evaluation for each design alternative. This form of evaluation expands conventional business success metrics to include an organization's contributions to local communities, environmental health, and a best overall value to the District's rate payers.

#### Our Solution

Jacobs uses an in-house parametric cost estimating tool, which will allow planning-level construction cost and life cycle cost estimates, as well as multi-criteria non-cost analyses in facility planning and preliminary design alternatives evaluation projects. Our team members recently conducted similar evaluations for Redding's Clear Creek WWTP Facility Plan, Grand Canyon South Rim WWTP upgrade design, and tertiary treatment alternatives evaluation for Calpine.

### Critical Issue 3: Blending of Lake Water

LACOSAN's primary objective is to secure reliable disposal of treated effluent from all treatment facilities, whereas the recycled water user's primary objective is to secure reliable flow of recycled water at the quality level compatible with intended uses. The existing SEGEP system uses water from Clear Lake as needed to supplement flow to the end user. Effluent from the Northwest, Clearlake Oaks, and Southeast WWTPs has approximately 2 mgd of dry weather flow, which could increase to 8 mgd during wet weather conditions.



Figure 4. Clear Lake

The Kelseyville and Lakeport WWTPs will add 0.3 and 0.55 mgd average dry weather flow, respectively, adding up to approximately 3 mgd during dry weather conditions when the user desires to secure up to 8.5 mgd, which will necessitate continuing the use of Clear Lake water during dry seasons. If LACOSAN decides to move forward with the tertiary treatment upgrade, the addition of Clear Lake water will pose a unique challenge likely not encountered elsewhere in California, which is to blend secondary effluent with other water before it goes through tertiary treatment.

### Our Solution

The first step to address this challenge is early communication with the Regional Water Quality Control Board and the Division of Drinking Water (DDW). As the challenge with blending water from Clear Lake occurs primarily with the recycled water permit, the issue must be addressed with permitting agencies first. Once it is deemed permissible, adjustments will need to be made in the base assumption for the location and consolidation of the tertiary treatment system. Based on our understanding of Clear Lake's water quality, blending secondary effluent and lake water prior to tertiary treatment will provide overall higher quality to the end user, even though treatment capacity will need to be expanded up to 8.5 mgd or an agreed-upon maximum flow rate to the end user. Having previously discussed potential permit issues for the disinfected tertiary recycled water with the Regional Board and the DDW for the temporary solution considered by Calpine in 2022, our team is intimately familiar with the permitting process.

### Critical Issue 4: Managing Variability of Flows from WWTPs

Quantities of treated effluent vary throughout the year, yet recycled water demand from Calpine is a steady 8.5 mgd. Effluent flows from each treatment plant will be reevaluated based on more recent data. This information will then be incorporated into an integrated hydraulic model to test various supply and demand scenarios while optimizing available storage at each treatment plant.

As discussed in Critical Issue 3, dry weather flow from all WWTPs will be significantly less than 8.5 mgd, whereas during wet weather conditions, the Lakeport and Kelseyville WWTPs could add approximately 3 mgd of additional flow, and the combined flow may exceed 10 mgd. In addition to evaluating the conveyance capacity of the existing SEGEP system, treatment capacity will need to be evaluated to handle varying flows and consistently produce disinfected tertiary water in compliance.

### Our Solution

Our solution is to balance effluent disposal from the treatment facilities being added to the system and provide sufficient flow quantity and quality to Calpine. Ultimately, if there is not enough recycled water to serve all the targeted users, it may be necessary to augment supplies with a new lake intake and pump station.

### Critical Issue 5: Minimizing Operational Complexity of the Conveyance System

The new recycled water supply from the Kelseyville and Lakeport WWTPs will have to integrate with the existing conveyance system somewhere between the SEG Effluent Pump Station (SEGEPS) and the Harris Street tank. While the existing infrastructure works reliably now, introducing a new supplemental source of recycled water in between the two existing pump stations could negatively impact the stability of automated operations at those pump stations. The new configuration may require some form of storage that can provide a stable boundary condition no matter where the source water is coming from. Another consideration is the surge controls that will be needed to mitigate resulting pressure spikes during a power outage or other process upset.

### Our Solution

One solution to mitigate these issues would be to provide a tank at the high point along the new transmission main between the Kelseyville WWTP and SEGEPS. This could help stabilize pressure on the discharge side of the Kelseyville PS and SEGEPS, while also stabilizing suction pressures on the suction side of the B-Street PS. Furthermore, a tank at the high point would prevent water column separation in the event power is lost at the Kelseyville PS. Additionally, it could be beneficial to tie the new transmission main (from Kelseyville) into a location immediately downstream of the B-Street PS. While this is not the shortest route to connect, it would lessen the hydraulic impacts on pump station stability by virtue of the boundary condition provided by the existing Harris Street tank.



Figure 5. Kelseyville WWTP



## Critical Issue 6: Right-of-way Acquisition for Pipeline and Appurtenances

The new pipeline will require land acquisition and easements for construction and operations. If the report produced under this project is to be used in support of an environmental impact report (EIR), it will be necessary to carefully evaluate multiple routes between facilities before deciding on a final recommended project. The evaluations should consider potential impacts to property owners and the environment, life cycle costs, and community benefits. Evaluating alternatives in this manner will help the County negotiate easements, and will also prepare the District for potential legal challenges to the project.

Jacobs will assist in updating the pipeline routing evaluation to consider the cost and non-cost factors related to the alignment options. Selection of the best value alignment will result in a successful project for all stakeholders and lead to schedule efficiency during final design.

### Our Solution

Pipeline route alternatives will prioritize the use of existing publicly owned rights-of-way and easements, where they already exist between the Kelseyville WWTP and B-Street PS. Additionally, functional hydraulic requirements will be established for route evaluation, such as elevation of the high point along the alignment. For example, an alignment that had a high point above the Harris Street tank would help stabilize hydraulic controls while also mitigating potential surge pressures.

## Additional Critical Technical Issues

**Flow Balance.** The main objective for LACOSAN is to dispose of all effluent without spillage. A full-circle system with a pond at the Southeast or Middletown WWTP will allow some flow equalization. Holding effluent into the pond, however, could potentially cause algal bloom, which will make tertiary treatment challenging.

**Lake Water Quality.** Calpine uses ~8.5 mgd of water conveyed through SEGEP, and the demand is historically met by effluent from the five treatment facilities, supplemented with Clear Lake water when there is not enough effluent flow. During the dry seasons when supplemental water is needed, Clear Lake water often contains high levels of algae and high turbidity.

**Electrical Upgrades.** The existing Southeast WWTP does not have unit processes requiring high power demand. Installation of tertiary treatment at the Middletown,

Southeast, or any other lagoon-based treatment facility, will likely require electrical upgrades.

**Resources.** Under Title 22, operation of a disinfected tertiary recycled water facility treating greater than 1 mgd and less than 10 mgd will require a qualified operator at or above Grade 4 as a chief plant operator, a qualified operator at or above Grade 3 for the designated operator in charge of a shift, and daily sampling of effluent (365 days a year) for total coliform monitoring.

### Our Solution

Our solution will set a clear road map for the FCEP upgrade into the Title 22 tertiary system, including integrated operation of multiple storage locations, providing for the robust and proven tertiary treatment technology. The pathways required to implement the treatment upgrade will consider low-energy treatment alternatives and the ease of operation.

## Scope

### Task 1 – Project Initiation

#### Task 1.1 – Kick-Off Meeting

A kick-off meeting will be conducted with the design team and District staff. The kick-off meeting will be designed to clearly communicate the District's project vision and the roles and responsibilities of each team member. The objectives of the kick-off meeting will be to review the purpose and scope of the project and establish individual roles and lines of communication. Outcomes such as team chartering, the project management plan, schedule, budget, and critical success factors will also be determined.

#### Task 1.2 – Establish Project Schedule

Our proposed team has delivered many projects similar in size and complexity to the FCEP project. Our team is committed to meeting the required milestones over the duration of the project schedule. We have assembled a team who is familiar and experienced with pipelines, especially in agricultural settings, and our team stands ready to implement the schedule provided.

		2024									
Task		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Project Initiation										
2	Project Management										
3	Engineering										
4	Optional Tasks										

Figure 6. Sample schedule

### Task 2 – Project Management

#### Task 2.1 – Project Management Plan

##### Project Management Approach

Our project management approach features engagement from key subject matter experts, proper application of proven tools and processes, and a strong focus on project goals with a commitment to ensure their achievement. Our general approach is to bring the best team, best approach, and proven delivery processes to update the basis planning document for the future design and construction of the FCEP project. Our experience with the project area and other improvements at District facilities around Lake County allows our team to efficiently address the needs of project stakeholders. **We will bring our institutional knowledge of the County's and partner agencies systems to this project.**

**Project Manager Michael Randall** has 18 years of experience with large conveyance planning and design projects in California. He has been working with the District over the last 12 years, successfully delivering projects in Lake County. Michael is the best project manager for this preliminary design project because of his breadth of experience in pumping station and conveyance design and construction, history executing similar projects with our proposed Northern California design team, and passion and commitment to make this project a success. Michael will be highly available and collaborative with project stakeholders throughout delivery. He will be the single point of contact and fully accountable to the District regarding the following areas of focus:

- **People and Leadership.** Through relationships developed over years of project delivery, Michael will provide design team leadership to ensure continuous risk management, team responsiveness, streamlined execution of tasks, sustained commitment to safety and environmental protection, and full accountability for the quality of services provided.
- **Structure and Governance.** An effective team structure and project governance is vital to achieve accountability and facilitate integration between District, Calpine, and public stakeholders. Michael will ensure project goals are achieved by focusing the team's efforts on the job at hand—developing the best approach to the FCEP project, on time, and for the best value.
- **Tools and Delivery Processes.** Michael will leverage Jacobs' proven delivery processes to execute this work using our prescribed standards and delivery requirements. We have a strong understanding of the District's expectations based on our recent work with

Calpine and past work with the District on this project. We will follow all procedures for communication, document sharing, and funding requirements.

Michael and his team will deliver the right solutions and high-quality design deliverables that Lake County expects. He will focus on the following areas:

- **Align the Right Resources.** A workforce planning application will identify the resources required, and will provide status-at-a-glance updates throughout the project.
- **Monitor Scope, Schedule, and Budget.** Oversight will eliminate surprises and mitigate any identified trends, with progress reporting through PMWeb to keep the team informed.
- **Manage Change.** Recognize and identify change as soon as it arises, quantify the impact, and manage it to successful resolution.
- **Start off with a knowledgeable team.** This team is familiar with the project challenges and can use that knowledge to be efficient with scope level of effort and schedule.

##### Quality Assurance/Quality Control (QA/QC)

Jacobs' quality management program requires rigorous and continuous QC on all projects. Wayne Ohlin will be responsible for technical review of the design documents to ensure the project has a sound basis for moving through to final design. Aspects of our QC program include independent QC review in advance of all deliverables and consultation early on and throughout the design process regarding all important design decisions. This level of engagement results in fewer surprises and rework necessary at milestone reviews.

##### Cost Control

We understand the most effective approach to managing cost is to keep the project on schedule. We will build a baseline schedule during initiation activities and will develop and use cost control processes that complement the District's standard operating procedures to integrate budget and expenditure information with the baseline schedule. Michael will inform the District of the financial aspects of the project through to completion. He will report on the status of budgets, commitments, risks, and opportunities related to project costs.

##### Schedule Management

Michael will oversee development and maintenance of the schedule, coordinating input from all relevant parties. He will establish and manage the schedule baseline in alignment with the change management process and confirm the schedule progression reflects the current state of work. Michael will also establish reporting on the status of

interfaces, delays, risks, and opportunities related to the schedule.

### Independent Technical Review/Design Check

Independent technical reviews will be performed to provide senior technical input, direction, and quality oversight on all deliverables and tasks.

### Constructability Review

When we perform constructability reviews, a written comment log will be provided to address the issues and resolved notation. Our team will attend meetings and provide constructability consultation to the design team as directed by the District's Project Manager. Constructability reviews will focus on phasing, staging, access, and other factors that could impact the schedule, cost, and quality of the construction. Constructability reviews will include reviewing and expanding the preliminary construction schedule and designing construction staging plans to expand on potential cost and time savings by conducting value engineering workshops, industry outreach, and risk register development.

### Risk Management

Collaborating with owners in identifying risk and mitigation strategies is fundamental to our management approach. Aspects include using a risk register to identify risks; focusing on risks that add the highest cost and schedule impacts to the project; developing strategies to eliminate, minimize, or offset these potential impacts; updating the risk register; and incorporating risk mitigation measures during design and throughout the project.

### Task 2.2 – Progress Meetings

Progress meetings will be held to review scope, budget, and project status and make time-sensitive decisions. Upcoming schedule activities will also be reviewed. The team will be kept apprised of project progress via monthly progress reports. Jacobs will update the County at monthly progress meetings with the District's Project Manager.

### Task 3 – Engineering Approach

Our engineering approach involves evaluating existing wastewater treatment facilities and reviewing data from state, regional, and local agencies on population and land use within the project area. This dual focus will identify suitable sources for our effluent pipeline and assess anticipated wastewater flows based on current and projected land use and population trends. By evaluating plant design and treatment schemes, design influent flows and loads, effluent quality, current operational performance, and

regulatory compliance, we aim to select facilities that meet our criteria for quality, quantity, and legal obligations. Additionally, analyzing land use plans and population projections will ensure our project aligns with future demand, supporting sustainability and efficiency goals.

### Technical Tools and Processes

Jacobs is an industry leader in the development of planning, estimating, and O&M tools for conveyance design. A few of the tools and processes we use are highlighted below.

- **Building Information Modeling (BIM) Expertise.** Our project delivery plan will meet the District's BIM requirements with our specialized resources and BIM and Maximo capabilities.
- **Reliability Centered Design (RCD).** We will plan ahead to improve reliability and minimize unnecessary maintenance. Systematically implemented RCD will result in a smoothly operating system that provides efficient, uninterrupted service.
- **Leverage Construction and Operations Capabilities.** Engage in-house experts toward a design that is constructible and operable to meet District goals and provide assurance on capital cost, schedule compliance, and operational efficiencies.
- **Hard-Dollar Cost Estimating.** Accurately reflects current market pricing and escalation with a cost database developed exclusively for conveyance work.

### FCEP

The proposition entails the strategic placement of the recycled WTP at Middletown, with the principal objective of optimizing facility deployment. A compliance point will be established downstream of the tertiary treatment system at Middletown to ensure the final tertiary disinfected effluent is in compliance with **Title 22 Tertiary Recycled Water Standards**, prior to its conveyance to the Geysers cooling towers. It is important to note the feasibility of this approach hinges on its compliance with regulatory standards. If any compliance issues arise and prevent the mixing of lake water prior to tertiary treatment, there might be a need for LACOSAN to provide separate tertiary treatment processes, one at the Southeast WWTP and another at the Middletown WWTP. This scenario would prompt a careful assessment of the Kelseyville and Lake Port connections.

In the pursuit of regulatory compliance, an integration of tertiary filtration and disinfection process is required for recycled water treatment process. Pre-treatment steps may also be considered to improve the effectiveness of the filtration process by addressing potential contaminants earlier.

The selection of an appropriate disinfection method is important to ensure **Title 22 Tertiary Recycled Water Standards** will be met. The choice between chlorination and UV disinfection requires careful evaluation of factors such as effectiveness, simplicity, environmental impact, long-term sustainability, and cost savings.

### Task 3.1 – Analyze Existing Data

#### Review Existing Wastewater Treatment Facilities

The existing wastewater treatment facilities include:

- Northwest Regional, Southeast Regional, Kelseyville, and Middletown WWTP – owned and operated by LACOSAN
- Clearlake Oaks WWTP – owned and operated by the Clearlake Oaks County Water District
- Lakeport WWTP – owned and operated by the City of Lakeport Municipal Sewer District

General information on plant design and treatment processes is described in the following section. Upon reviewing the available data for existing wastewater treatment facilities, we discovered a range of historical data related to flows, loads, and effluent quality. However, this information is not up to date and does not reflect the most current conditions. To address this and accelerate our review and analysis, we will:

- Use Existing Plant Knowledge.** We will leverage detailed existing knowledge on plant design and treatment processes as foundational information to expedite the analysis. Understanding already established processes such as headworks, biological treatment, and disinfection schemes across these facilities allows us to quickly identify commonalities and variations without redundant groundwork.
- Engage with Local Authorities.** We will engage with the County to obtain the most recent data available. By combining updated data with our extensive historical insights, we can assess current conditions against historical trends, significantly speeding up our analytical phase.

#### General Plant Design and Treatment Schemes

The wastewater treated by the Northwest Regional, Southeast Regional, and Middletown WWTPs is domestic wastewater from residential and commercial users within the LACOSAN services area. The wastewater is treated through a headworks process (mechanically and manually bypass bar screens) followed by secondary biological treatment in aerated lagoons and sodium hypochlorite disinfection.

The wastewater treated by the Clearlake Oaks WWTP is primarily domestic wastewater in the community of Clearlake Oaks. The collected wastewater is treated through a headworks process followed by an extended aeration process, secondary clarifier, and chlorine disinfection. The treated sewage then combines with the effluent from the Northwest Regional WWTP and discharges into the LACOSAN Southeast Reservoir.

The Lakeport WWTP consists of an influent screening, two facultative/stabilization ponds arranged in series, a chlorine disinfection system, and a storage reservoir.

The Kelseyville WWTP consists of three facultative/stabilization ponds arranged in series and a fourth pond that acts as an effluent pump station clear well, as well as a reservoir for the chlorine disinfection system.

#### Flows and Loads

The historical flow data of the WWTP secondary effluent are presented in Table 1. The high maximum month flow to average annual flow ratios at the Clearlake Oaks, Northwest, and Southeast facilities indicates significant wet weather impacts. For example, Northwest WWTP experienced a maximum daily flow of 6.3 mgd in 2019. Our analysis will further assess flow variability from each WWTP along with the effluent storage capacity to help determine the required capacity of the FCEP infrastructure to reliably dispose every drop of LACOSAN's effluent.

**Table 1 – Summary of Secondary Effluent Flows**

WWTP	Min Monthly Flow (mgd)	Average Annual (mgd)	Max Monthly Flow (mgd)
Clearlake Oaks <sup>(1)</sup>	0.21	0.35	1.53
Middletown <sup>(1)</sup>	0.08	0.12	0.25
Northwest Regional <sup>(1)</sup>	0.75	1.21	4.38
Southeast Regional <sup>(1)</sup>	0.00	0.80	3.69
Kelseyville <sup>(2)</sup>		0.26	0.46
Lakeport <sup>(2)</sup>		0.54	0.95
<sup>(1)</sup> Based on 2019-2021 historical data			
<sup>(2)</sup> Based on 2003 historical data			

LACOSAN, in collaboration with the Geysers operator, has secured a water supply agreement with Yolo County for the use of the water in Clear Lake. This agreement permits the withdrawal of up to 7,950 acre-feet of water annually from the lake. The District has the flexibility to use this water according to its needs, with the stipulation that no more than 10% of the total water entitlement can be withdrawn in any given month. Currently, the District employs this water right to augment the effluent flows within the SEGEP system.



## Effluent Quality

The historical chemical quality data of the WWTP secondary effluent was used to calculate flow ranges as presented in Table 2.

**Table 2 – Summary of Effluent Quality of the Wastewater Treatment Facilities**

Parameter	WWTP	Secondary Effluent		
		BOD (mg/L)	TSS (mg/L)	pH
Average	Clearlake Oaks	11.5	NA	8.2
	Middletown	32.9	NA	8.1
	Northwest Regional	14.4	NA	7.7
	Southeast Regional	53.9	35.2	7.9
	Lakeport	15.4	40	
Median	Clearlake Oaks	10	NA	8.2
	Middletown	30	NA	8.1
	Northwest Regional	12	NA	7.7
	Southeast Regional	44	30.5	8.0
95 <sup>th</sup> Percentile	Clearlake Oaks	24.7	NA	8.4
	Middletown	58.7	NA	8.1
	Northwest Regional	30.9	NA	8.2
	Southeast Regional	116.5	65.6	8.0

BOD = biochemical oxygen demand  
 mg/L = milligram(s) per liter  
 NA= not available  
 TSS = total suspended solids

## Current Discharge Permits

The six wastewater treatment facilities within the County are each permitted through the waste discharge requirement (WDR) permit. Summary of current permits for the six treatment plants will be developed to confirm:

- Permitted flow
- Effluent quality limits
- Permitted disposal points

The information compiled in this task will be compared to current and future flows and loads to inform the effluent flows the County will be required to manage, and to estimate the timeline at which these WDR permits will need to be updated.

The State of California Water Recycling Criteria (Title 22 Section 60323) requires an engineering report for all recycled water projects, which must be submitted when a change to the existing recycled water system occurs. Connecting additional treatment facilities to the existing SEGEP will trigger the requirement to develop a new engineering report with detailed descriptions of the new

recycled water system. In addition, if a centralized treatment system is considered to produce higher quality (e.g., disinfected tertiary) recycled water, the centralized treatment plant will become the permit compliance point. Jacobs will evaluate the impact of the full-circle concept on the County's permitting requirements and will provide a summary of additional permitting requirements/considerations for the full-circle concept, including the impact of potentially upgrading the treatment system to California Title 22 disinfected tertiary recycled water, whether via a centralized plant or individual upgrades at each of the six treatment plants.

## Existing Population and Land Use Review – Future Projection

General information regarding current population metrics, alongside projected annual growth rates, and average daily wastewater flow production per capita are required to project the future wastewater flows to each treatment facility under consideration. Understanding these parameters will allow us to tailor our strategies and plans to meet anticipated demands. It will also enable the identification of potential capacity challenges and inform necessary upgrades or expansions to accommodate future growth.

Updated land use data will be collected from the County's GIS database and used to identify current and future potential customers of recycled water that will be quantified and evaluated for treatment and conveyance implementation in the updated report.

## Task 3.2 – Review Previous PDR

Recommendations from the 2004 PDR will be reviewed and compared with the latest published general plans for purposes of updating projections of recycled water supplies and irrigation demands. Collaboration with Calpine will help update potential demands for groundwater recharge at the steam fields. Accordingly, Calpine's water quality standards for recycled water will be considered during evaluation of treatment alternatives.

## Task 3.3 – Finalize Updated PDR

The updated PDR will consist of evaluations for the following potential program features:

- Sizing of a new recycled water pump station at the Lakeport WWTP
- Upgrades/changes to the existing Kelseyville PS, SEGEPS, and B-Street PS
- Sizing and configuration of a new lake pump station that would supply raw water to the Kelseyville WWTP
- Treatment technologies compatible with algae-laden waters
- Locations where treatment upgrades could occur
- Pipeline routing alternatives to provide safe, efficient, and reliable conveyance of treated effluent to the existing transmission system
- Use of existing storage ponds for purposes of flow equalization to further stabilize treatment operations
- Use of existing ponds for seasonal storage
- New storage tank(s) for pump operations

The engineering team will evaluate up to three alternative improvement programs that consist of various combinations of the features listed above. These programs will be screened based on the following criteria:

- Operational complexity, including considerations of reliability and staffing requirements
- Capital costs
- Risk assessment
- Impacts to public and private stakeholders
- Ability to satisfy recycled water demands

The engineering team will identify a recommended program of improvements based on the screening criteria listed above. This alternative will then be vetted by LACOSAN operations staff, and any other stakeholders identified by LACOSAN, before finalizing the PDR.

## 2. Project Manager Qualifications

Michael Randall has 18 years of experience in civil engineering, project management, and construction management focusing on water resources, wastewater treatment, and public works transportation projects. He is a project manager and design manager for various multi-disciplinary projects, drawing on the firm's senior engineering resources. Michael's extensive wastewater experience includes sewer system condition assessment, modeling, design and rehabilitation, lift/pumping station design and operation, collection system operation and maintenance, instrumentation and control system design and start-up, and field design services. He has been involved in all phases of project development, from conceptual planning to construction, commissioning, and start-up, using traditional design-bid-build project delivery and collaborative project delivery throughout his career. As a project manager, Michael manages design and production staff, provides client and agency coordination, manages budgets and schedules, and verifies deliverable quality.

Michael has worked with LACOSAN over the past 12 years on various planning, design, and implementation projects. He brings the expertise of the Jacobs team to the District to solve conveyance design, permitting compliance, and SCADA integration challenges as they arise. Our team has a trusted delivery record and commitment to quality that benefits the District. **Michael's familiarity with the District's facilities and operational criteria will allow Jacobs to hit the ground running with integrated institutional knowledge.** The District will benefit from the detailed knowledge the Jacobs team brings to the FCEP project.

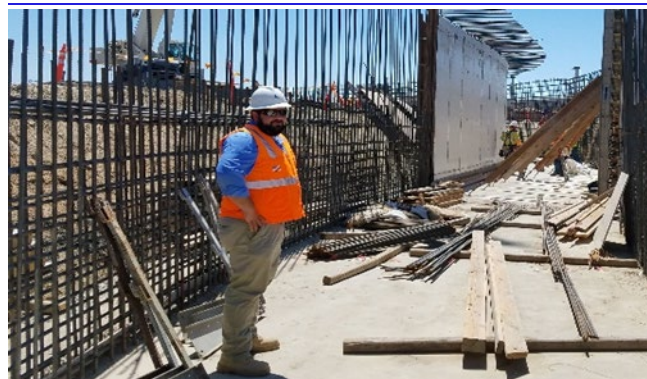


Figure 7. Project Manager Michael Randall

The Jacobs team has been involved in the delivery of a large portion of the District's WWTP upgrades and conveyance planning projects over the years. We are familiar with the collection system modeling and provide regular model updates for new developments, which can help validate treatment plant flow data and make projections of future flow rate increases as the county develops. Our involvement in the recent planning level evaluation of the Calpine study regarding effluent treatment upgrades provides a foundation of understanding for the new challenges the project faces moving forward. Jacobs can assist in evaluating viable alternatives that will meet the District's and other stakeholders' needs. Our team understands the detailed nuances of project elements, such as the lake intake and its impacts on operations complexity, as well as cost that can be evaluated to ensure the true project alternatives costs are captured in the report to aid in sound decision making by the District and project stakeholders.

Michael has committed availability for this project through the project schedule.

Table 3 – Required Information

Required Information	
Education	MS, Civil Engineering, California Polytechnic University BS, Civil Engineering, California Polytechnic University
Registration	Professional Engineer: California (No. 81192)
Total Years of Experience	18
Total Years with Jacobs	14
Total Number of Similar Projects as a Project Manager Successfully Completed for Local Agencies	15 Please see Mike's resume (beginning on the following page) for detailed information about his relevant project experience.
Commitment to Other Projects	Mike is completing work on two large design projects in April for the City of Tracy and Stanislaus Regional Water Authority and will prioritize his engagement on this project.
Availability for the Project	Mike has approximately 20% projected availability for the project duration and is scheduled for 5% of his time on the project.





## Michael Randall, PE

### *Project Manager*

Mike has broad water and wastewater project and construction management experience. Mike's water experience includes water system operation and maintenance (O&M), conveyance and distribution facilities design, hydraulic modeling, instrumentation and controls (I&C) design and start-up, disinfection system design, and reverse osmosis (RO) water treatment plant start-up. He also has extensive experience with water reporting through the California Department of Public Health, State Water Resources Control Board (SWRCB) Division of Water Rights, Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) Program, DWR, and additional local agencies. Mike's wastewater experience includes sewer system condition assessment; modeling, design, and rehabilitation; lift/pumping station design and operation; collection system O&M; I&C system design and start-up; and field design services.

#### EDUCATION/ QUALIFICATIONS

BS, Civil Engineering,  
California Polytechnic  
University, San Luis Obispo

MS, Civil Engineering,  
California Polytechnic  
University, San Luis Obispo

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 81192)

#### YEARS OF EXPERIENCE

18

#### YEARS WITH JACOBS

14

### Why Michael?

- Design management of multi-discipline final design delivery
- Conveyance system design experience for pump stations and pipelines
- Water and wastewater project construction and condition assessment expertise

### Relevant Project Experience

**EchoWater Project: Primary Effluent Pumping Station – Ongoing |**  
*Sacramento Regional County Sanitation District (Regional San), Sacramento, CA | Agency PM: William Yu, 916.575.9271, [yuw@sacsewer.com](mailto:yuw@sacsewer.com)*

**Project Manager / Engineer Representative.** Mike is leading the design and services during construction activities of this upgrade at the existing WWTP. The 400-mgd

pumping plant is intended to lift the hydraulic profile of the plant mid-process stream to provide increased head to feed the expanded treatment technologies of the upgraded WWTP. The project included the pump station, a state-of-the-art odor control facility, several flow control structures, electrical and mechanical building, and a vacuum priming system. He is also leading the multi-discipline design team, overseeing performance and schedule tracking, and coordinating with design staff during design and construction phases. Mike also managed design, which led to taking over project management once construction phase services during construction and commissioning commenced.

**Capital Improvement Plan Projects for Water, Wastewater, and Reuse System – Ongoing | U.S. Army, Fort Irwin, CA | Agency PM: Paul Schonenberger, 760.380.9663, [paul.schonenberger.civ@mail.mil](mailto:paul.schonenberger.civ@mail.mil)**

**Design Manager.** Mike is serving as Design Manager and Conveyance Design Lead for a multi-discipline team on various water and wastewater improvement projects. One project included rehabilitation of 1,680 LF of 8-inch pipe using cured-in-place pipe linear and additional point repairs on the base's gravity sewer system. He is responsible for delivering drawings, specifications, and cost estimates for the improvement projects at the base. Projects include 4- to 32-inch pipeline installation, mechanical system improvements or replacements, SCADA system and telemetry improvements, and process upgrades or expansions to the base's water and wastewater treatment facilities. These projects are delivered through an alternative delivery design-build model under Jacobs' Operations and Maintenance contract with the U.S. Army.

**Regional Surface Water Supply – Completed 2023 | Stanislaus Regional Water Agency, Turlock, CA |**  
**Agency PM:** Robert Granberg, 209.401.0439, [granbergassociates@gmail.com](mailto:granbergassociates@gmail.com)

**Design Manager.** Jacobs is providing design, permitting, construction, commissioning, and long-term operation and maintenance for a 35-mgd RWTf and treated water pump stations, 0.5 miles of raw water pipeline, and 12.5 miles of finished water distribution pipelines. Challenges included construction adjacent to irrigation canals, two BNSF railroad crossings, and delivering needed capacity within budget on a compressed schedule. The team addresses environmental constraints and performs significant outreach to landowners adjacent to pipeline alignments and community and state leaders. Mike is leading the design of 12.5 miles of welded steel pipe from 30 to 48 inches through rural streets as part of the broader design-build project. He is managing more than 50 staff across our design offices in Redding, Corvallis, and Krakow, Poland, in coordination with the treatment plant design team.

**Truckee River Bridge Replacement – Completed 2018 | Central Federal Lands, Tahoe City, CA |**  
**Agency PM:** Matt Ambroziak, 720.963.3619, [matthew.ambroziak@dot.gov](mailto:matthew.ambroziak@dot.gov)

**Conveyance Design Engineering Lead.** The project consisted of realigning 1,000 LF of 42-inch-diameter reinforced concrete pipe gravity sewer pipe and 300 LF of a 6-inch-diameter ductile iron pipe (DIP) sewer force main at a bridge crossing over the Truckee River. The project required coordination with two municipal sewer agencies that owned the infrastructure and the federal CFL agency funding the project. The capstone project provided an improved traffic flow through the Westside of Lake Tahoe and through Tahoe City. Mike was responsible for utility relocations, leading the multi-discipline team (including mechanical and I&C disciplines), and coordinating with the roadway and bridge design teams.

**Cedar Creek Pump Station – Completed 2017 | Tarrant Regional Water District, Fort Worth, TX |**  
**Agency PM:** Ed Weaver, 817.720.4255, [ed.weaver@trwd.com](mailto:ed.weaver@trwd.com)

**Conveyance Design Engineering Lead.** The project consisted of 1,400 LF of 108-inch-diameter welded steel pipe to connect a new raw water pump station to the District's raw water transmission main to an existing water treatment plant. Mike was responsible for the off-site pipeline design and on-site yard piping. The pipeline included a 108-inch-diameter line valve, chemical injection facilities, cathodic test stations, and other pipe appurtenances. Responsible work also included on-site yard piping at the new raw water pump station, which required coordination with various facilities leads for the project's on-site facilities including pump station, chemical building, water treatment plant, fire suppression system, and fish screen scour system.

**Low Lake Level Pump Station Discharge Aqueducts – Completed 2015 | Southern Nevada Water Agency (SNWA), Las Vegas, NV |**  
**Agency PM:** Peter Jauch, 702.862.3400, [peter.jauch@snwa.com](mailto:peter.jauch@snwa.com)

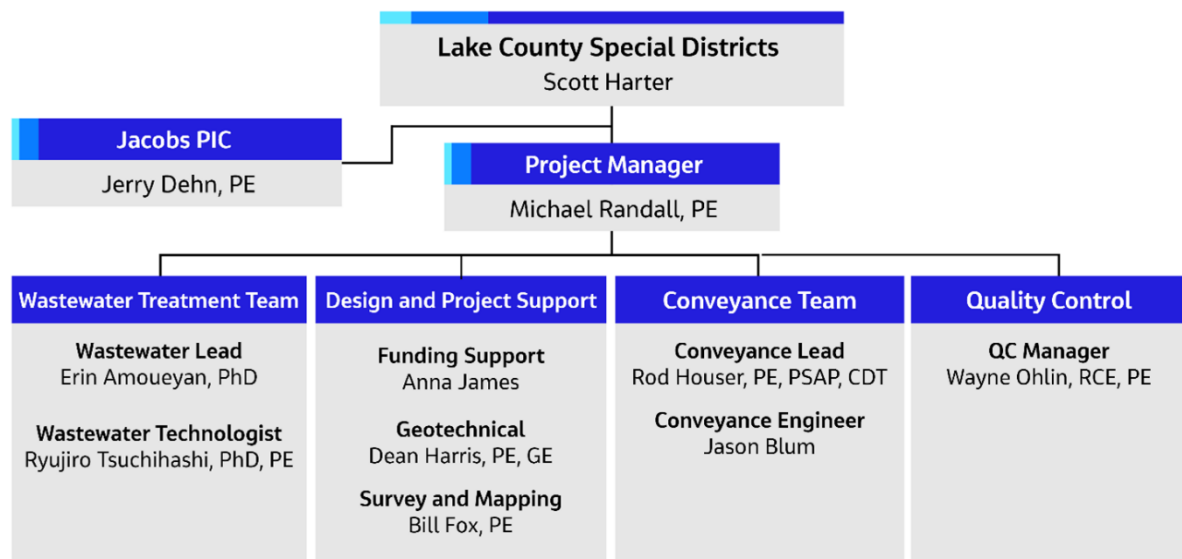
**Staff Engineer.** Due to falling Lake Mead water levels, SNWA implemented a new low-lake level intake and pump system to help ensure adequate water supply to the Las Vegas valley. As such, new large-diameter aqueducts are required to deliver water to the WTF at Lake Mead and into the raw water system that carried flows to another WTF in the valley. Work involved planning and final design of two 144-inch aqueducts; one a low-lift aqueduct serving the WTF at Lake Mead, and the other a high-lift aqueduct connecting into the existing conveyance system leading to the WTF in the valley. Work included pipeline alignment selection, final design, and pre-purchase of key elements of the aqueducts to allow complex tie-ins to the existing systems next winter. Mike served as a conveyance pipeline designer for the work and project engineer associated with the pipeline structural design and specifications.

**Davis Woodland Water Supply – Completed 2015 | Woodland Davis Clean Water Agency, Woodland, CA |**  
**Agency PM:** Dennis Diemer, 925.876.0111, [ddiemer@cityofdavis.org](mailto:ddiemer@cityofdavis.org)

**Staff Engineer.** Mike led the final design of 2 miles of fiber optic conduit to relocate the utility out of the way of the raw water pipeline. He assisted the lead civil engineer on the 5-mile, 36-inch-diameter welded steel pipe from the raw water pump station on the Sacramento River to the treatment facility.

### 3. Staff Qualifications

The Jacobs team, outlined in the organization chart below, will work under the leadership of **Michael Randall**, who will serve as the Project Manager and primary point of contact. He has 18 years of experience with complex conveyance projects and organized his team to respond quickly and effectively to the project's needs and those of District and project stakeholders. Our team is organized to provide experienced task leads for wastewater and conveyance, along with technical experts for support, and ample resources in reserve to deliver the scope and beyond as needed.



The table below highlights each team member's relevant experience. Resumes, containing detailed information, can be found following the table.

**Table 4 – Key Team Member Relevant Experience**

Personnel / Role / Qualifications	Total Yrs' Exp / Yrs w/Jacobs	No. of Completed Projects	Commitment to Other Projects / Availability for This Project
<b>Jerry Dehn, PE / PIC</b> BS, Elec. Eng., Univ. of OK PE: CA, No. 17591	30 / 20	58*	90% / 10%
<b>Erin Amoueyan, EIT / Wastewater Lead</b> PhD, Env. Eng., Univ. of NV MS, Env. Eng., Babol Univ. of Technology BS, Civil Eng., Univ. of Mazandaran EIT, No. 7776	8 / 5	13*	80% / 20%
<b>Ryujiro Tsuchihashi, PhD, PE / Wastewater Technologist</b> PhD, Env. Eng., Univ. of CA Davis MS, Civil & Env. Eng., Kyoto Univ. BS, Env. & Sanitary Eng., Kyoto Univ. PE: CA, No. 85394	26 / 5	54*	85% / 15%
<b>Anna James, EIT / Funding Support</b> BSc, Civil & Env., Eng., Univ. of MI EIT	11 / 11	18*	90% / 10%
<b>Dean Harris, PE, GE / Geotechnical</b> MS, Civil Eng., Georgia Tech	30 / 30	20*	70% / 30%

Personnel / Role / Qualifications	Total Yrs' Exp / Yrs w/Jacobs	No. of Completed Projects	Commitment to Other Projects / Availability for This Project
BS, Civil Eng., Georgia Tech PE: CA, No. 79494; GE: CA, No. 3098			
<b>Bill Fox, PE, PLS / Survey &amp; Mapping</b> BS, Surveying/Photogrammetry, CA State Univ., Fresno PE: CA, No. 34648; PLS: CA, No. 4799	44 / 44	40*	60% / 40%
<b>Rod Houser, PE, BCEE, PSAP, CDT / Conveyance Lead</b> BS, Civil Eng., Univ. of CA Davis PE: CA, No. 54215; BCEE	32 / 1	9*	30% / 60%
<b>Jason Blum, EIT / Conveyance</b> BS, Civil Eng., CA State Univ. at Chico EIT, No. 173726	4 / 4	8*	70% / 30%
<b>Wayne Ohlin, PE / QC Manager</b> BS, Civil Eng., CA State Univ. PE: CA, No. 72287	21 / 16	11*	90% / 10%

*\*Please see individual resumes for detailed information about their relevant project experience.*



## Jerry Dehn, PE

### *Principal-in-Charge*

Jerry is a principal project manager with experience in project and design management, detailed engineering, programming, construction management, field testing, and commissioning of treatment plant and pump station projects. He has managed water and wastewater facility plans, capital improvement planning efforts, and large multidiscipline engineering design and construction projects.

#### EDUCATION/ QUALIFICATIONS

BS, Electrical Engineering,  
University of Oklahoma

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 17591), AZ, KS,  
KY, NV, TX

#### YEARS OF EXPERIENCE

30+

#### YEARS WITH JACOBS

20

#### Why Jerry?

- 30+ years of experience in project management, detailed engineering, programming, field testing, and commissioning of treatment plant and conveyance projects
- Served as principal-in-charge and project manager for several Northern Nevada agencies, including the City of Reno, Washoe County, Truckee Meadows Water Authority, and Douglas County
- Successfully managed wastewater and dewatering facilities, including process evaluations, facility plans, capital improvement planning efforts, large multidiscipline engineering design projects, and construction projects

#### Relevant Project Experience

**Various Projects – Completed 2016** | *Lake County Special Districts, Lakeport, CA* | Agency PM: Scott Harter, 707.263.0119, [scott.harter@lakecountyca.gov](mailto:scott.harter@lakecountyca.gov)

**Program Manager.** Jerry was responsible for engineering support for the District's four wastewater and 10 water systems. Final designs executed and constructed included the Southeast Lift Station and Force Main Improvements, Kelseyville WWTP Expansion, numerous sewer collection system improvements, Middletown WWTP Disinfection System Improvements, North Lakeport Intertie Pump Station and Pipeline, North Lakeport RW Strainer Mixer and Ozone Generator, and the Kono-Tayee Water Storage Expansion projects. He developed master plans for each of their four existing wastewater treatment plants, operations, and control system improvements at the Southeast sewer lift stations, and SCADA system improvements at the North Lakeport and Soda Bay WTPs. Jerry developed a collection system and distribution system hydraulic models and assessed existing odor control measures. He also developed reports submitted to the Regional Water Quality Control Board and provided financial planning for future improvements to District facilities.

**South Truckee Meadows Water Reclamation Facility (STMWRF) 2020 Expansion – Ongoing (in construction)** | *Washoe County Water Resources, Reno, NV* | Agency Director: Dwayne Smith, 775.328.2043, [desmith@washoecounty.us](mailto:desmith@washoecounty.us)

**Principal-in-Charge.** Jerry continues to serve as principal-in-charge for planning, design, and construction support services associated with major upgrades at the treatment facility to address capacity needs through 2040. The project includes more than \$100 million in capital improvements touching virtually every unit process at the existing facility.

**EchoWater Project: Primary Effluent Pumping Station Design – Completed 2022** | *Sacramento Regional County Sanitation District (Regional San), Sacramento, CA* | Agency PM: William Yu, 916.575.9271, [yuw@sacsewer.com](mailto:yuw@sacsewer.com)

**Design Manager.** Jerry managed the design, which provided necessary lift to allow a new biological nutrient removal (BNR) process to be added into the existing treatment train at the Sacramento Regional WWTP. Work included preliminary and final design of an 800-foot extension of a 400-mgd capacity primary effluent channel, a large pump station wet well structure sized for 720 mgd, a large distribution structure on the discharge side of the pumps to feed PE to the BNR process, PE diversion structures, an electrical building, a biofilter odor control facility,

and associated site development and related appurtenances. The pump station included four 120-mgd-capacity vertical axial flow pumps.

**North Valley WWTP Expansion – Completed 2018 | Douglas County, Minden, NV | Agency PM: Nick Charles, 775.782.6239, [ncharles@douglasnv.us](mailto:ncharles@douglasnv.us)**

**Principal-in-Charge.** Jerry guided the Jacobs team in the planning, design, construction support services related to expanding the plant's capacity from 0.4 to 1.1 mgd. The project included influent pump station modifications, replacing the existing secondary treatment process with new sequencing-batch reactors, converting the exiting lagoon into an aerobic digester, and wholesale replacement of the plant SCADA system. Construction was carefully planned to eliminate service interruptions so the existing plant could continue operations throughout.

**STMWRF Biosolids Handling Facilities – Completed 2016 | Washoe County Water Resources, Reno, NV | Agency PM: Alan Jones, 775.954.4651, [ajones@weashoecounty.us](mailto:ajones@weashoecounty.us)**

**Project Manager.** Jerry managed the planning, design, and construction support services for new biosolids facilities for processing solids on-site for disposal. The facilities were designed for waste-activated sludge max week loading rate of 11,000 lbs/day (dry solids), with expansion planned up to 16,000 lbs/day. The project included two 50,000-gallon aerobic digesters with mixing and aeration equipment, two new screw press biosolids dewatering units, one rotary drum thickener, and a biosolids facility building to house the thickening, dewatering, and associated equipment. Constructed facilities include pumping, aerobic digestion, chemical conditioning, mixing, mechanical biosolids dewatering and handling facilities.

**Truckee Meadows Water Reclamation Facility (TMWRF) Solids Handling Improvements – Completed 2014 | Washoe County, Sparks, NV | Agency PM: Michael Drinkwater, 775.335.1644, [mdrinkwater@cityofsparks.us](mailto:mdrinkwater@cityofsparks.us)**

**Project Manager.** Jerry was responsible for developing a master plan for solids dewatering that provides the greatest economic benefit to the TMWRF and its ratepayers. Evaluation includes the consideration of automating to reduce operations and maintenance costs with individual unit processes and the evaluation of processes to reduce nutrient loads recycled to the plant effluent to ensure compliance with TMWRF's discharge requirements. The planning effort also included the evaluation of a PLC versus DCS platform for automation of the dewatering facility. Jerry's team also delivered final design of Near-term Solids Dewatering Facility improvements at the regional WRF. The project required integrating designs with another consultant for construction.

**STMWRF Rehabilitation and Enhancements – Completed 2012 | Washoe County Water Resources, Reno, NV | Agency PM: Alan Jones, 775.954.4651, [ajones@weashoecounty.us](mailto:ajones@weashoecounty.us)**

**Project Manager.** Jerry was responsible for the delivery of improvements to the existing plant. The project scope included the planning, design, and construction of a new headworks facility, expanding the capacity of the existing effluent pump station, and replacement of the existing DCS system with a new PLC-based SCADA system for monitoring and control of the WRF, reuse pump station, reuse pressure reducing valve site, and four collection system lift stations. He took precautions to ensure plant operations were not adversely impacted.





## Erfaneh "Erin" Amoueyan, PhD, EIT

### Wastewater Lead

Erin supports clients in water and wastewater projects in the San Francisco Bay Area and Southern California. She has been assisting with several projects in the Bay Area such as secondary treatment and dewatering for the City of Sunnyvale, Headworks and Cogeneration project at the San Jose-Santa Clara Regional Wastewater Facility, and Biosolids Digester Facilities project for the San Francisco Public Utilities Commission. Erin has also been assisting with project management support tasks on different phases of water and wastewater projects.

#### EDUCATION/ QUALIFICATIONS

PhD, Environmental Engineering, University of Nevada, Las Vegas

MS, Environmental Engineering, Babol University of Technology  
BS, Civil Engineering, University of Mazandaran

#### REGISTRATIONS/ CERTIFICATIONS

- Engineer in Training (EIT), No. OT7776

**YEARS OF EXPERIENCE**  
8

**YEARS WITH JACOBS**  
5

#### Why Erin?

- Experience on water reuse projects and assessing microbial risks associated with different potable reuse systems
- Has evaluated feasibility of stormwater capture and reuse, purified water bottling, regulations, and compliance
- Published several scientific papers focused on water/wastewater treatment and water reuse systems in well-known peer-reviewed journals

#### Relevant Project Experience

**El Portal WWTP Rehabilitation – Completed 2024 | NPS, Yosemite Valley, CA | Agency PM: Mike Luecker, 303.913.7005, [michael\\_luecker@nps.gov](mailto:michael_luecker@nps.gov)** **Design Lead / Process Engineer.** The WWTP treats up to 1 mgd of wastewater from the communities of El Portal and Yosemite Village in Yosemite Valley received directly through a collection system of more than 30,000 feet of 3- to 15-inch sewers and six lift stations. The project objective was to perform an alternative analysis and recommend a path forward for rehabilitating the plant to meet capacity and effluent

requirements for the next 50 years. As design lead, Erin designed the UV disinfection system. As process engineer, Erin assisted with treatment process modeling using Sumo modeling software.

**Geysers Tertiary Recycled Water Treatment Study – Completed 2023 | Calpine Corporation, Lake County, CA | Agency PM: Tim Conant, 770.431.6060, [tim.conant@calpine.com](mailto:tim.conant@calpine.com)**

**Project Manager / Lead Engineer.** The Northwest and Southeast WWTPs provide wastewater effluent to a common holding pond. Water from this pond is pumped to the Geysers geothermal field for beneficial reuse. Calpine investigated the potential to use this water for cooling tower makeup water, which would require upgrading to California Title 22 – Tertiary Recycled Water standards, with filtration as the primary required modification. As project manager, Erin managed project activities, schedule, and plan work to ensure activities were completed in a properly integrated and timely manner. As lead engineer, she assisted in conducting a study to determine the recommended upgrades at the pond necessary to achieve Title 22 – Tertiary Recycled Water standards, developed a preliminary design of those upgrades and a capital cost estimate, and prepared an engineering report.

**South Rim WWTP Upgrade – Completed 2022 | National Parks Service (NPS), Grand Canyon Village, AZ | Agency PM: Chris Carpenter, 720.429.6190, [chris\\_carpenter@nps.gov](mailto:chris_carpenter@nps.gov)**

**Design Lead.** The existing WRF was originally commissioned in 1971 and underwent major upgrades and treatment process expansions in approximately 1986 and 2001. As a result, the day-to-day operation of this facility relies on infrastructure ranging in age from 20 to 50 years. Based on evaluation of the existing facilities' condition and capacity, NPS decided to replace the existing treatment with new facilities that would support anticipated visitor growth to the Park and ensure continued efficient and compliant operation for a 50-year planning horizon, through 2070. Erin designed the UV disinfection system for the new treatment plant.



## Secondary Treatment and Sludge Dewatering Project – Completed 2022 | *City of Sunnyvale, CA* |

Agency PM: Allison Boyer, 408.730.7516, [aboyer@sunnyvale.ca.gov](mailto:aboyer@sunnyvale.ca.gov)

**Project Engineer / Assistant Project Manager.** This project phased out the City's existing secondary treatment process, which consisted of oxidation ponds, fixed growth reactors (FGRs), and air flotation tanks (AFT) that could not meet possible future effluent limits, and replaced them with a new conventional activated sludge (CAS) system consisting of bioreactors and secondary clarifiers (SC) configured as a Modified Ludzak-Ettinger (MLE) process for total nitrogen (TN) removal. As project engineer, Erin performed hydraulic modeling and analysis of the treatment processes as well as design of the polymer system. As Assistant PM, Erin assisted with different tasks related to project management, scheduling, and cost estimation.

## Headworks Facility – Completed 2021 | *City of San Jose, CA* | Agency PM: John Cannon, 408.221.1362, [john.cannon@sanjoseca.gov](mailto:john.cannon@sanjoseca.gov)

**Project Engineer.** The project will provide the regional wastewater facility (RWF) with influent wastewater conveyance and preliminary treatment facilities, capable of treating current flows and the extreme peak hour wet weather flow condition in year 2040. This will be accomplished by constructing a new Headworks 3 (HW3), making minimal improvements to existing Headworks 2 (HW2), decommissioning the existing Headworks 1 (HW1), and making improvements to the influent conveyance facilities. Erin assisted with tasks such as modifications of the design-build contract, deliverables, specifications, and submittals.

## San Jose-Santa Clara RWF Cogeneration Facility – Completed 2021 | *City of San Jose, CA* |

Agency PM: John Cannon, 408.221.1362, [john.cannon@sanjoseca.gov](mailto:john.cannon@sanjoseca.gov)

**SWPPP Inspector.** The project installed new reciprocating internal combustion engines for a total of approximately 14 megawatts (MW) of capacity and new boilers for supplemental heat at the RWF. The project uses all the digester gas generated by the digestion process at the RWF and produces electricity for the RWF's electricity demands. The project was constructed within an area of the RWF that drains to the plant headworks. Therefore, stormwater runoff is ultimately discharged through the RWF's outfall in compliance with the RWF National Pollutant Discharge System (NPDES) Permit. Soil from project excavations was staged near the site on an approximately 2-acre portion of the plant that drains off site. The soil fill area was subject to the CGP and the Stormwater Pollution Prevention Plan (SWPPP) was prepared for the soil fill area as a Risk Level 1 project. Erin performed weekly inspections and observations, completed an inspection checklist (at least once each 24-hour period during extended storm events), identified and recorded BMPs that needed maintenance to operate effectively, that failed, or that could fail to operate as intended, and prepared technical memoranda.

## Design-Build Services for the Donald C. Tillman Water Reclamation Plant (DCTWRP) – Completed 2021 | *City of Los Angeles Bureau of Sanitation, Los Angeles, CA* | Agency PM: Michael Ruiz, 818.778.4108, [michael.ruiz@lacity.org](mailto:michael.ruiz@lacity.org)

**Project Engineer.** The City is committed to maximizing the reuse of water from its water reclamation facilities. To achieve these goals, the LA Bureau of Sanitation and the LA Department of Water and Power (LADWP) are evaluating options to further treat filtered undisinfect tertiary effluent from the DCTWRP by constructing a new advanced water purification facility (AWPF) for potable reuse. Erin assisted with investigating technical issues on the proposed design-build project.

## Biosolids Digester Facilities Project (BDFP) – Completed 2021 | *San Francisco Public Utilities Commission (SFPUC), San Francisco, CA* | Agency PM: Rosanna Tse, 415.554.3484, [rtse@sfgwater.org](mailto:rtse@sfgwater.org)

**Project Engineer.** The BDFP is a 15-year effort to provide planning, design, construction, and start-up of new and upgraded solids handling facilities. Specifically, BDFP will replace the outdated existing digesters with new, state-of-the-art digesters and other new facilities that produce higher quality biosolids, capture and treat odors more effectively, and maximize biogas use and energy recovery to produce heat, steam, and energy. The proposed improvements will address aging infrastructure and outdated technology, while mitigating neighborhood impacts and increasing sustainability, energy efficiency, and operational reliability. The improvements will also ensure compliance with State and Federal permits and the Sewer System Improvement Program (SSIP) Level of Service (LOS) goals adopted by SFPUC. Erin assisted with the project execution plan, estimate to complete (ETC), and QA/QC process, etc.



## Ryujiro Tsuchihashi, PhD, PE

### Wastewater Technologist

Ryujiro is a senior technologist in wastewater process engineering with extensive experience in wastewater treatment processes, including recycled water, nutrient removal, and industrial wastewater. His main areas of expertise include wastewater reclamation/reuse process evaluation and design, pilot testing, biological nutrient removal, and sidestream treatment. Ryujiro is one of the principal authors of the textbooks *Wastewater Engineering* (5<sup>th</sup> Edition) and *Water Reuse: Issues, Technologies and Applications*.

#### EDUCATION/ QUALIFICATIONS

PhD, Environmental Engineering, University of California, Davis

MS, Civil and Environmental Engineering, Kyoto University

BS, Environmental and Sanitary Engineering, Kyoto University

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer: CA (No. 85394)

#### YEARS OF EXPERIENCE

26

#### YEARS WITH JACOBS

5

#### Why Ryujiro?

- Familiar with the SESEP system, challenges faced by LACOSAN and the end user
- Recognized recycled water subject matter expert
- Experience and knowledge in California Title 22 requirements

#### Relevant Project Experience

**Geysers Tertiary Recycled Water Treatment Study – Completed 2023 | Calpine Corporation, Lake County, CA | Agency PM: Tim Conant, 770.431.6060, [tim.conant@calpine.com](mailto:tim.conant@calpine.com)**

**Process Senior Technical Consultant.** Ryujiro served as a senior technical consultant to provide guidance in evaluating treatment and configuration alternatives to produce recycled water meeting California Title 22 disinfected tertiary recycled water criteria. The challenges included seasonal variability in available effluent, blending of recycled water and lake water to secure desired flow while maintaining the regulatory requirements and flow requirements, and blending of recycled water from a treatment plant located at midpoint of the conveyance pipeline. Modular treatment systems were evaluated for the flexibility of seasonal and ultimate

expansion, and ease of construction.

**Recycled WTP Design – Completed 2023 | U.S. Army Corps of Engineers, Fort Hunter Liggett, CA | Agency PM: Adam Rauch, 916.557.6965, [adam.rauch@usace.army.mil](mailto:adam.rauch@usace.army.mil)**

**Process Design Senior Technical Consultant.** The project was comprised of design of a recycled water treatment system including algae removal, tertiary filtration and disinfection, including an innovative batch-system chlorine disinfection using free-chlorine disinfection. Ryujiro developed a Title 22 Engineering Report. The process selection and challenges are similar to LACOSAN as the intake to the tertiary treatment system is a pond treatment effluent.

**Strategic Water Planning – Completed 2023 | Marin Municipal Water District, CA | Agency PM: Paul Sellier, 415.945.1557, [psellier@marinwater.org](mailto:psellier@marinwater.org)**

**Water Reuse Process Expert.** Ryujiro provided technical review of tertiary treatment facility design and supporting compilation of information for the design documents. The treatment processes selected include surface filtration and UV disinfection.

**Clear Creek WWTF Plan – Completed 2022 | City of Redding, CA | Agency PM: Josh Vandiver, 530.224.6069, [jvandiver@cityofredding.org](mailto:jvandiver@cityofredding.org)**

**Process Design Senior Technical Consultant.** Ryujiro provided expertise for the wastewater treatment upgrade to meet stringent effluent nutrient limits. He provided guidance and reviewed the technical approach and methodologies to the biological nutrient removal process evaluation and disinfection alternative evaluation.

**El Portal WWTP Rehabilitation – Completed 2024 | *NPS, Yosemite Valley, CA* | Agency PM: Mike Luecker, 303.913.7005, [michael\\_luecker@nps.gov](mailto:michael_luecker@nps.gov)**

**Senior Technologist.** Ryujiro is providing QC review and process inputs to upgrade existing secondary treatment and tertiary treatment processes (~1 mgd) to meet stringent nutrient limits and Title 22 equivalent water quality criteria. He is reviewing main treatment process and ancillary facility design.

**South Rim WWTP Upgrade – Completed 2022 | *National Park Service (NPS), Grand Canyon Village, AZ* | Agency PM: Chris Carpenter, 720.429.6190, [chris\\_carpenter@nps.gov](mailto:chris_carpenter@nps.gov)**

**Senior Technologist.** Ryujiro conducted feasibility evaluations to upgrade the existing secondary treatment (conventional treatment or membrane bioreactor [MBR]) and tertiary treatment processes to meet nitrogen limit and other recycled water quality criteria. The scope also included an upgrade of aerobic digester for biosolids processing. In the pre-design and schematic design phase, he led the recycled water treatment part of the upgrade.

**Clean Water Program Management: Master Plan Validation Biosolids and Energy Management Plan – Completed 2020 | *City of San Mateo, CA* | Agency PM: Brad Underwood, 650.522.7303, [bunderwood@cityofsanmateo.org](mailto:bunderwood@cityofsanmateo.org)**

**Senior Process Engineer.** Ryujiro provided design review for the WWTP upgrade, focusing on primary treatment and disinfection process, as well as overall process review. The new treatment plant has an MBR that replaced the existing treatment plant and included wet weather treatment process. He provided expert inputs on the potential use of free-chlorine disinfection scheme for the plant upgrade.

**San Luis Demonstration Treatment Plant – Completed 2019 | *Panoche Drainage District, Firebaugh, CA* | Agency PM: Miguel Arias-Paic, 303.445.2132, [mariaspaic@usbr.gov](mailto:mariaspaic@usbr.gov)**

**Technical Lead.** Ryujiro provided process analysis and technical inputs for a demonstration treatment plant established by the U.S. Bureau of Reclamation for agricultural drainage water treatment. Treatment processes included anaerobic biological filter for nitrate and selenium reduction, filtration (pressure filter and UF tested), and RO for salinity removal.

**Tertiary Treatment Facilities – Completed 2018 | *Sacramento Regional County Sanitation District (Regional San), Sacramento, CA* | Agency PM: William Yu, 916.875.9271, [yuw@sacsewer.com](mailto:yuw@sacsewer.com)**

**Water Reuse Process Expert.** As part of the EchoWater Project, Ryujiro provided design support, technical reviews, and process analysis for the disinfection contact basin (DCB) facility design to meet California Title 22 disinfected tertiary recycled water criteria. He led the team to develop the CT requirements for the free chlorine disinfection based on the pilot study data, provided inputs in the process control schemes, and reviewed and provided inputs to chemical dosing system design.



## Anna James, EIT

### *Funding Support*

Anna has experience in a variety of water and water reuse infrastructure projects. She has comprehensive knowledge on program and project delivery, especially in procurement, financial modeling, and securing state and federal funding for large conveyance and WWTP infrastructure program projects, as well as skills in sustainable and innovative water infrastructure design. Anna has delivered major infrastructure projects and programs, including several in San Francisco and the Bay Area. She has strong connections with state and federal loan agencies; local, state, and Congressional politicians; the California State Water Board; and the U.S. EPA. Anna recently served as San Mateo Clean Water Program's Deputy Program Manager, Procurement Lead, Collection System Lead, Project Delivery Lead, and State and Federal Funding Lead.

#### EDUCATION/ QUALIFICATIONS

BSc in Engineering, Civil and Environmental Engineering, University of Michigan

#### REGISTRATIONS/ CERTIFICATIONS

- Engineer-in-Training (EIT), NCEES

#### YEARS OF EXPERIENCE

11

#### YEARS WITH JACOBS

11

### Why Anna?

- Developed successful strategies and approaches to receive funding
- Obtained >\$500M in state and federal low-interest loans at an average interest rate of 1.27%
- Secured a well-below-average bond interest loan rate of 3.62%

**Las Virgenes-Triunfo Pure Water Project – Ongoing** | *Las Virgenes-Triunfo Joint Powers Authority (JPA), Las Virgenes, CA* | Agency PM: David Pederson, 818.564.5205, [dpederson@lvmwd.com](mailto:dpederson@lvmwd.com)

**Funding and Financing Lead.** Anna is assisting the JPA in addressing key funding parameters, such as aligning program implementation expenditures with available

and projected cash flows, attaining low-interest loans, and qualifying for grant programs, including the MWD's Local Resources Program (LRP). She will lead the low-interest loan and grant applications (e.g., Water Infrastructure Financing and Innovation Act [WIFIA], State Revolving Fund [SRF], LRP), and other available grant programs and will lead a team to develop an Affordability Cash Flow Curve using a proven Tailored Analytics and Comparative Techniques (TACT) model, which produces an affordability curve to address JPA allocation and financial sharing, as well as funding planning.

**Clean Water Program (CWP) – Completed 2022** | *City of San Mateo, CA* | Agency PM: Deryk Daquigan, 650.522.7287, [ddaquigan@cityofsanmateo.org](mailto:ddaquigan@cityofsanmateo.org)

**Deputy Program Manager.** The San Mateo Clean Water Program is a nearly billion-dollar capital improvement program with the goal of upgrading the City's aging wastewater collection system and treatment system with advanced infrastructure. As Deputy Program Manager, Anna provided programmatic oversight of all processes and procedures; supported the Program Manager with review of key deliverables; provided programmatic management and coordination of the program team including Functional Leads, Project Managers, and all other technical or support staff; and provided coordination of Risk Management, Quality Management, Program Funding and Environmental and Permitting functional groups. Anna also led the Change Management process facilitating weekly Change Board Meetings and documenting key decisions.

**CWP – Completed 2022** | *City of San Mateo, CA* | Agency PM: Deryk Daquigan, 650.522.7287, [ddaquigan@cityofsanmateo.org](mailto:ddaquigan@cityofsanmateo.org)

**State and Federal Funding Lead.** Anna coordinated multiple successful letter of interest efforts (two low-interest loans from the Water Infrastructure Financing and Innovation Act [WIFIA] program), resulting in invitations to apply for loans for up to \$364M and completed submittal of one full loan application. She led negotiation and closing of the first loan, and the of the second full loan application with EPA. Anna coordinated directly with EPA and ushered the projects through the EPA's environmental review processes. She also coordinated a financing agreement with the California State Board to obtain approximately \$137M of SRF assistance. She ensured the projects met State and Federal loan

requirements, coordinated with State and Federal agencies on behalf of the City and the City's Public Financing Authority, and coordinated with the CWP Program Controls and Economic Management team to update cash flow projections. Anna also worked directly on the environmental review of the WWTP project.

**Program Management Services – Completed 2021 | City of Hope, Duarte, CA | Agency PM: Kevin Taylor, 626.221.5934, [kevtaylor@coh.org](mailto:kevtaylor@coh.org)**

**Program Management Knowledge Professional.** Anna evaluated the maturity of City of Hope's Duarte Campus Capital Program. She participated in an agile program management evaluation team, completing 20+ staff interviews and using the Jacobs Program Maturity Model—an assessment and benchmarking tool—to identify strengths and opportunities for the program. The assessment specifically focused on program functional areas including organizational governance, management controls, program assurance (e.g., health and safety, environment, quality, security, sustainability, and legacy), delivery strategies and plan, program controls, change management, risk management, performance management framework, document management, program delivery systems, and program services (e.g., administration, finance and accounting, human resources, and information technology management). Anna also performed project-specific reviews of three of the program's projects. She participated in and led interviews with a large cross-section of the City of Hope organization, developed and synthesized observations, and provided specific implementation plans for programmatic services.

**Seawall Earthquake Safety Program – Completed 2020 | Port of San Francisco, CA | Agency PM: Steven Reel, 415.274.0574, [steven.reel@sfpport.com](mailto:steven.reel@sfpport.com)**

**Task Lead.** The program is a phased approach to seawall resilience, focused on assessing asset conditions, identifying capital backlog and revenue constraints and opportunities, and developing an understanding and response to the dual threads of earthquake and flooding. Anna successfully led coordination of early deliverables for the program, setting the team up for success to consider delivering subsequent reports and deliverables. She coordinated multiple subconsultants and section authors to produce the Existing Data Inventory Report on schedule and on budget. This memo set the tone for follow-on deliverables and provided an outline and approach for successful delivery of related reports. Anna additionally led and supported other tasks including aerial mapping and survey review and coordination and USACE Civil, Urban, and Cost Estimating – Focused Array, which includes generation of factsheets to describe structural and nature-based flood measures that were used in support of the San Francisco Waterfront Resiliency Study. Anna led coordination with the Army Corps, developing planning-level estimates as part of USACE's 3x3x3 process.

**CWP – Completed 2019 | City of San Mateo, CA | Agency PM: Deryk Daquigan, 650.522.7287, [ddaquigan@cityofsanmateo.org](mailto:ddaquigan@cityofsanmateo.org)**

**Deputy Project Delivery Lead.** Anna ensured project success through support of the PDL in driving consistency, prioritization, and a programmatic perspective for all the individual projects in the CWP. She regularly coordinated with all project managers; provided leadership and mentoring for project managers and challenged them on project implementation; understood all aspects of potential risks for each project (provided by project managers) and for the CWP; led and communicated change management; conducted bi-weekly change management board meetings with a consistent process; prioritized support service (functional) activities for projects; communicated project activities to Program leadership; facilitated resolution of decisions, issues, and direction; and considered combined schedules, costs, and cash flow of all projects. Other duties included leading two separate Water Infrastructure Finance and Innovation Act (WIFIA) efforts, a full loan application and a letter of interest; coordinating hydraulic modeling efforts to support the Program; and supporting and interfacing with the other Program functions (program controls, public outreach, environmental and permitting, construction management).

**Biosolids Digester Facility – Completed 2019 | San Francisco Public Utilities Commission (SFPUC), San Francisco, CA | Agency PM: Rosanna Tse, 415.554.3484, [rtse@sfpwater.org](mailto:rtse@sfpwater.org)**

**Design Engineer.** Anna was responsible for designing a polymer system in the new biosolids dewatering facility, SFPUC's largest sewer system improvement program capital project. She was tasked with completing all process mechanical design responsibilities in 35%, 65%, 95%, and 100% design submittals, and coordinating with the other design disciplines in multidisciplinary meetings. Anna drafted technical specifications and coordinated with several polymer vendors to design a system for use in the City's Southeast Plant (SEP), which is responsible for processing about 80% of the City's wastewaters.





## Dean Harris, PE, GE

### Geotechnical

Dean is a geotechnical engineer with decades of experience in geotechnical evaluation and design. He supervises geotechnical field investigations and performs geotechnical engineering and pavement analysis for a variety of projects. Dean has extensive experience in foundation evaluation for various foundation types including a wide variety of soil conditions from challenging loose and soft soil, and foundations on dense sand and gravel. His experience in foundation evaluation includes the evaluation of spread-footing foundations, soft, fine-grained materials, loose sandy materials, dense sand and gravels, and rock. Dean has extensive knowledge of the analysis, design, and construction of drilled shaft foundations. He is also experienced in the evaluation, design, and construction of driven pile foundations.

#### EDUCATION/ QUALIFICATIONS

MS, Civil Engineering,  
Georgia Institute  
of Technology

BS, Civil Engineering,  
Georgia Institute  
of Technology

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 79494), ID, OR,  
TX
- Geotechnical Engineer:  
CA (No. 3098)

#### YEARS OF EXPERIENCE

30

#### YEARS WITH JACOBS

30

#### Why Dean?

- Provided stability analyses and design of sheet pile walls to control dredged, contaminated soils and water
- Experienced in predesign of wastewater treatment plants
- Performed stability analyses for water control structures

#### Relevant Project Experience

**Northeast Water Purification Plant (NEWPP) – Ongoing** | *City of Houston, TX* | Agency PM: Ravi Kaleyatodi, 281.455.5872, [ravi.kaleyatodi@houstontx.gov](mailto:ravi.kaleyatodi@houstontx.gov)

**Lead Geotechnical Engineer.** The intent of this design-build project is to expand an existing 80-mgd plant to final capacity to treat 400 mgd. The project includes a new intake facility in Lake Houston, a 1.1-mile raw water delivery pipeline, and the new treatment plant facilities. Dean is coordinating the geotechnical explorations and evaluation and preparing design details and specifications. He directed the work of the local geotechnical subconsultant, who performed geotechnical explorations and completed geotechnical reports for the project. Dean also worked with the design team to implement the geotechnical recommendations into the design documents.

He has remained involved during construction as the primary resource for resolving field conditions, changes to the design, and evaluation of pile driving conditions for the intake structure in Lake Houston.

**Lane City Dam – Ongoing** | *Lower Colorado River Authority, Lane City, TX* | Agency PM: Dennis Daniel, 512.473.3301, [dennis.daniel@lcra.org](mailto:dennis.daniel@lcra.org)

**Geotechnical Engineer.** The Lane City Dam is a composite sheet pile and concrete spillway diversion structure located on the Colorado River in Texas. The dam has experienced severe scour conditions downstream of the structure, threatening the stability of the dam. A new sheet pile cutoff at the downstream end of the dam was developed to provide resistance to scour of material from beneath the dam, and improve the stability of the structure. Dean performed sheet pile stability calculations for the structure and developed design details to integrate the new sheet piles with the existing structure and slopes.

**Missouri River WWTP – 2019** | *City of Omaha, NE* | Agency PM: Mike Arends, 402.444.3915 x203, [mike.arends@cityofomaha.org](mailto:mike.arends@cityofomaha.org)

**Geotechnical Engineer.** The Missouri River WWTP is located partially within a federal levee system administered by the U.S. Army Corps of Engineers, but includes site features outside of the earthen levees. Because of this, the site has experienced frequent flooding that has affected the operations of the plant and the ability to expand the plant to meeting the needs for expanded capacity. During Jacobs' completed design of an expansion for the plant, failures along the Missouri River bank were discovered. Jacobs adapted the design of the plant expansion to accommodate natural disasters and designed bank stabilization measures for the river. Dean evaluated flood

protection measures to protect the plant during flooding and incorporated design measures to provide opportunities for temporary measures as needed during flood events.

### **Woodland Davis Water Reclamation Facility (WRF) – Completed 2016 | *Woodland Davis Clean Water Agency, Woodland, CA* | Agency PM: Dennis Diemer, 925.876.0111, [ddiemer@cityofdavis.org](mailto:ddiemer@cityofdavis.org)**

**Lead Geotechnical Engineer.** Dean performed geotechnical explorations at the plant site and developed the geotechnical report for the proposed new structures. This project included raw water and treated water delivery pipelines, and a completely new treatment facility to be designed and constructed via design-build delivery. As part of a prior project, earthen basins were filled with engineered, compacted fill. During design and construction of the new treatment plant, he developed a geotechnical exploration program that focused on the expansive fill materials, and the stress history of the foundation clay soil that found that deep foundation support was unnecessary for the large basins and clearwell structures. Dean developed an approach to improve the sampling and testing methods for clay fill and foundation soils to better understand compressibility and avoid pile foundations for the treatment plan foundations. He provided field observations to contend with construction challenges for subgrade preparation in clay soil during wet weather.

### **Quebec Dam Alternative Assessment – Completed 2015 | *Public Works and Government Services Canada (PWGSC), North Bay, Ontario* | Agency PM: Mohammad Murtaza, 416.590.8284, [mohammad.murtaza@tpsgc-pwgsc.gc.ca](mailto:mohammad.murtaza@tpsgc-pwgsc.gc.ca)**

**Geotechnical Engineer.** Dean provided geotechnical engineering and other support to develop construction cost estimates, feasibility reports, and investment analysis reports during assessment of alternatives for replacing a dam on the Ottawa River, in North Bay, Ontario, Canada.

### **Pritchard Lake Intake – Completed 2014 | *Natomas Mutual Water Company, Sacramento, CA* | Agency PM: Brett Gray, 916.826.7672, [bgray@natomaswater.com](mailto:bgray@natomaswater.com)**

**Geotechnical Engineer.** Dean directed the field and laboratory testing and led the evaluation of foundations. During construction, he provided oversight to pile driving and testing. The project involved final design, bid, permit, and construction support services for a 150-cfs fish screen/pumping plant facility. Project components included a pile-supported metal structure with composite concrete deck, automated wedge wire circular fish screens, two 350-hp vertical mixed-flow irrigation pumps with adjustable frequency drives, three 30- and 36-inch welded steel discharge pipes, and other miscellaneous auxiliary equipment and site improvements. Dean worked with the team to develop a cost-effective exploration program to understand foundations and slope stability conditions that could affect the structure. He led the geotechnical evaluation to develop estimated pile lengths and understand their ability to stabilize the slope, used cost-effective exploration and evaluation approaches, and developed a successful pile testing approach.

### **Otsego Township Dam Temporary Replacement Structure – Completed 2014 | *Environmental Protection Agency, MI* | Agency PM: Susan Virgilio, 312.886.4244, [virgilio.susan@epa.gov](mailto:virgilio.susan@epa.gov)**

**Geotechnical Engineer.** Dean was responsible for geotechnical services for the dam design and dam-removal team. The project goals were to replace the failing Otsego Township Dam and concrete spillway with a temporary replacement dam and spillway to retain existing contaminated sediments until they are remediated, while allowing removal of the existing dam and spillway and ultimate removal of temporary structures to restore the channel. He participated in developing alternatives for the replacement structure, provided oversight during field explorations, evaluation of stability conditions for sheet pile walls for the structure.

### **West Boise WWTF – Completed 2013 | *City of Boise, ID* | Agency PM: William Benko, PE, 208.384.3875, [wbenko@cityofboise.org](mailto:wbenko@cityofboise.org)**

**Geotechnical Engineer.** Dean developed technical requirements and planned the geotechnical exploration, observed field explorations and laboratory testing, and performed geotechnical analysis. Geotechnical challenges associated with this site included deep excavations below the groundwater level, adjacent to existing structures. He evaluated foundation stability and settlement and developed requirements for excavation support system and dewatering systems. Dean also prepared technical specifications related to geotechnical engineering, such as subgrade preparation, excavation support systems, and dewatering. During project construction, he reviewed contractor submittals and observed construction activities by the contractor to verify compliance with specification requirements.





## Bill Fox, PE, PLS

### *Survey and Mapping*

Bill has surveying, photogrammetry, civil engineering, and computer application experience with specialized technical expertise in computer applications for data manipulation/reductions including digital terrain modeling (DTM), CAD and GIS translations, terrain modeling, site and roadway earthwork calculations, and coordinate geometry. He directed Jacobs' photogrammetric mapping center in the Redding Regional office for more than 18 years. Bill actively participates in scoping, planning, and executing GIS and digital mapping project subtasks. He has extensive knowledge of the CAD/CAE and GIS tools and systems used to support the firm's engineering design projects. Bill has provided project/task management for large-scale mapping projects covering more than 1 million acres.

#### EDUCATION/ QUALIFICATIONS

BS, Surveying/  
Photogrammetry, California  
State University, Fresno  
  
AA, Engineering, Shasta  
Community College

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 34648)
- Professional Land  
Surveyor: CA (No. 4799)

#### YEARS OF EXPERIENCE

44

#### YEARS WITH JACOBS

44

#### Why Bill?

- Extensive technical and management experience on large design and GIS base mapping tasks/projects
- Engineer/surveyor experience with design applications, hydraulic modeling, and digital terrain modeling and digital/GIS base mapping
- Specialized experience in surveying, photogrammetry, computer applications for data manipulation including digital terrain modeling, CAD/GIS translations, terrain modeling, and site and roadway earthwork calculations

#### Relevant Project Experience

**Pump Station 1 – Ongoing** | *City of Redding, CA* | Agency PM: Josh Vandiver, 530.224.6069, [jvandiver@cityofredding.org](mailto:jvandiver@cityofredding.org)

**Survey Mapping Lead.** Bill provided technical scoping, estimating, and quality control review for a field topographic survey and design-level 20-scale, 1-foot

contour interval mapping for a 3.2-acre area for access and construction for a new water pump station. The survey and mapping included 800 feet for a new urban access roadway alignment to the pump station site. The based ground data started with recent existing bare earth USGS LiDAR point that was data quality control reviewed and significantly supplemented with GPS ground surveys throughout the mapping area. It also included nine FEMA-compliant stream cross-sections at 40-foot intervals and structure measurements along 320 feet of alignment along Jenny Creek upstream from the Sacramento River and six bathymetric cross-sections across the Sacramento River. Edge of pavement and side drainage channel cross-section points were also obtained at 50-foot intervals along the Sacramento River Trail for a distance of 2,675 feet. The combined LiDAR and field surveyed bare earth ground data and field surveyed break line data were used to develop GIS TIN surface and CAD/CAE Civil 3D DTM surfaces for design.

**Pajaro Valley Water Supply Program – Completed 2020** | *Pajaro Valley Water Management Agency, Watsonville, CA* | Agency PM: Brian Lockwood, 831.722.9292, [lockwood@pvwater.org](mailto:lockwood@pvwater.org)

**Survey Mapping Lead.** For the College Lake project, Bill provided technical scoping, estimating, and quality control review for surveying and aerial mapping for a 5.7-mile pipeline design. This included GPS photo control surveys, orthophoto plan sheet production, digital terrain modeling and contour mapping, and subconsultant management and supervision. On earlier projects for this client, he also provided design-quality mapping for a 22.3-mile, 54-inch-diameter import pipeline and 50 miles of irrigation distribution pipeline. A 2015 design update included scoping, SOW development, subconsultant management, and survey mapping deliverables review for control and topographic surveys of a field-surveyed, 7,600-foot strip map covering a new pipeline alignment.

**Black Rascal Creek – Completed 2020 | Merced County, CA | Agency PM: Dana Hertfelder, 209.385.7605, [dhertfelder@mercedid.org](mailto:dhertfelder@mercedid.org)**

**Survey Mapping Lead.** Bill provided technical scoping, estimating, and quality control review for surveying and aerial mapping, including airborne LiDAR data and aerial imagery for a 675-acre reservoir development area and 6,600-foot diversion channel downstream from the proposed reservoir. Work included GPS photo control surveys, orthophoto plan sheet production, digital terrain modeling and contour mapping, and subconsultant management and supervision. Deliverables included 50-scale, 1-foot contour interval design mapping and 3-inch pixel resolution color digital orthophoto imagery. The DTM data was provided in GIS TIN and CAD/CAE formats (INROADS and CIVIL 3D) for use in engineering design and volume calculations. Field surveys included small topo surveys at 23 culvert locations, FEMA-compliant cross sections and measurements for hydraulic modeling at two bridges and a drop structure along the Black Rascal Creek Diversion Channel. Our internal survey staff also performed research and field surveys to tie-in property corners for the development legal descriptions for easements and property acquisitions. This effort included a property survey and recordation of a Record of Survey, two construction and permanent easements for trainer levees, and the development of easements for the adjoining properties for the levees that surround the reservoir.

**Fish Passage Improvement Project at Red Bluff Diversion Dam – Completed 2013 | Tehama-Colusa Canal Authority (TCCA), Red Bluff, CA | Agency PM: Jeff Sutton, 530.934.2125, [jsutton@tccanal.com](mailto:jsutton@tccanal.com)**

**Surveyor of Record.** Bill provided design-quality mapping for the \$230 million project that includes 2,500-cfs pumping plant and 1,118-foot-long fish screen structure with 60 screen bays, seven fish refuge bays, four automated screen cleaning mechanisms, and a sediment jetting system. The project also features a siphon to convey water from the pumping plant across Red Bank Creek to the Tehama-Colusa and Corning Canals, a forebay, a 660-foot-long access bridge across Red Bank Creek, and automated control and monitoring systems.

**Central Valley Floodplain Evaluation and Delineation (CVFED) Program – Completed 2012 | California Department of Water Resources (DWR), Sacramento, CA | Agency PM: Yiguo Liang, 916.574.1408, [yiguo.liang@water.ca.gov](mailto:yiguo.liang@water.ca.gov)**

**Assistant Program Manager / Task Manager.** Bill used 3D GIS tools to provide hydraulic modelers with various terrain datasets for the program, where more than 8,000 square miles of Central Valley Floodplain Evaluation and Delineation (CVFED) data was used throughout the Sacramento and San Joaquin River Basins. Using 3D GIS tools, he directed internal GIS staff and subcontractor personnel to extract and mosaic various terrain and other GIS data from the CVFED hydraulic model for use by CVFPP modelers. For the CVFED project, Bill directed several surveying and aerial mapping/LiDAR subcontractors to acquire and process 2,000 square miles of 1-foot contour interval airborne LiDAR elevation data and 6-inch pixel resolution color aerial imagery covering much of the Sacramento River basin. Bill managed development of a high accuracy survey control network based on the NAVD88 vertical datum. The project included more than 200 miles of bridge/structure surveys, bathymetry surveys, and low-flow, wet channel field surveys to obtain underwater channel geometry to support HEC-RAS hydraulic modeling efforts. The surveying and base mapping aspects of the project were performed in compliance with FEMA Appendix M guidelines. He led the hydraulic model development for the 2,000-square mile area located at the Upper Sacramento River including LiDAR terrain data and digital imagery acquisition and development. Bill was responsible for 20 task orders for GPS control network surveys, LiDAR terrain data acquisition and post processing, color digital orthophoto imagery acquisition and processing, and bathymetry surveys.



## Rod Houser, PE, BCEE, PSAP, CDT

### Conveyance Lead

Rod has more than three decades of engineering experience within the private sector of California's water/wastewater industry. He has broad experience in reliable process control systems, automation, and energy optimization, as well as pump station design and water conveyance. Rod's experience in water infrastructure engineering spans all phases of project delivery, including master planning, feasibility studies, detailed design, and condition assessment. His areas of expertise include control valve applications, hydraulic modeling for pipelines and pump stations and troubleshooting of pump stations, valves, and pipelines.

#### EDUCATION/ QUALIFICATIONS

BS, Civil Engineering,  
University of California  
Davis

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 54215)
- Board-Certified  
Environmental Engineer  
w/ specialty certification  
in Water (AAEES)  
Supply/Wastewater
- Pump Systems  
Assessment Professional  
(Hydraulic Institute)
- Construction Documents  
Technician (CSI)

#### YEARS OF EXPERIENCE

32

#### YEARS WITH JACOBS

1

### Why Rod?

- 20 years of experience of consulting engineering (planning, design, and condition assessment) for Santa Rosa's Geysers Recharge project
- Engineering PM for Lake County Special District's 'Kelseyville/Finley Water System Improvement Project' that included USDA grant funding, pipeline routing and related easement procurement
- Project engineer for SFPUC's Westside Recycled Water System that included facilities planning, hydraulic modelling, and detailed design

### Relevant Project Experience

**USDA/RUS Water System Integration Project – Completed 2007 | Lake County Special Districts, Kelseyville and Finley, CA | Agency PM: Peggie King, 707.431.6097, [peggie.king@calpine.com](mailto:peggie.king@calpine.com)**

**Project Manager.** Rod led conceptual and detailed designs to combine two water systems (Kelseyville and Finley) to improve water quality, distribution pressure, and overall reliability. Work included preparation of a preliminary engineering report (PER), tank siting study, NEPA documentation, applications for USDA/RUS funding, and participation in Prop 218 hearings. The new infrastructure included a 1-MG welded steel tank, two potable production wells, two pipeline creek crossings, and 6 miles of transmission main to connect the two water systems. He also prepared 35 legal descriptions to secure utility easements along the transmission main corridor.

### Westside Recycled Water Treatment and Distribution Program – Completed

**2022 | City of San Francisco, CA | Agency PM: Barbara Palacios, 415.554.0718, [bpalacios@sfwater.org](mailto:bpalacios@sfwater.org)**

**Facilities Planner / Pump Station Project Engineer.** Rod prepared a facilities plan and detailed designs for the City's Westside recycled water transmission and distribution systems. Work included hydraulic modeling and designs for pumping and storage infrastructure. Design assignments included detailed designs for two pump stations (500+ hp each), 5+ miles of transmission main, and a 500,000-gallon buried storage reservoir in Golden Gate Park. The completed project delivers up to 4 mgd of purified wastewater to two golf courses: The Presidio and the National Cemetery. The final concept for recycled water distribution enables reliable deliveries to Westside, while offsetting potable water demands and conforming to a wide variety of hydraulic requirements for the varied stakeholders.

**Pipeline Routing Study and As-Needed Services – Completed 2022 | Vallejo Water Department, Vallejo, CA | Agency PM: Erik Nugteren, 408.279.7946, [erik\\_nugteren@sjwater.com](mailto:erik_nugteren@sjwater.com)**

**Principal-in-Charge.** Rod managed a team for preparation of a water master plan update and pipeline routing analysis. The completed model comprises 15,632 nodes, 15,632 links, and 2.4M LF of pipelines; it also includes 48 pumps (15 pump stations), 18 tanks (including three hydropneumatic tanks), and 17 PRVs. The model was also used to establish a new GIS database for the City's asset management system. Modeled pipes, tanks, and pump

stations were exported from the model data set to create shape files and associated databases used to populate the City's GIS layers for its water system. Ultimately, a 20-year capital improvement program was prepared and validated with City staff, which CIP included 37 projects worth an estimated \$14.1M. The routing study evaluated options for replacing aging transmission piping between the Fleming Hill WTP and connection to the existing Mare Island Straight pipeline. The study focused on minimizing impacts to traffic and the commercial downtown area as well as schools in the vicinity of the pipeline. Integrated County AP mapping and water billing records to establish highly accurate spatial distribution of existing and future water demands.

### **San Jose WWTP Facility-Wide Water System Upgrade – Completed 2022 | *City of San Jose, CA* | Agency PM: Feng Ying Chang, [FengYing.Chan@sanjoseca.gov](mailto:FengYing.Chan@sanjoseca.gov)**

**Pump Station Engineer / Technical Advisor/Designer.** Rod led conceptual and detailed designs of three pump stations and related air-gap storage tanks (potable water, fire-protection water, and high-pressure 3W). He was responsible for interpreting hydraulic model results for purposes of pump and pipeline sizing, developing process control narratives for three separate water systems, and tank sizing for fire protection and operational storage requirements. He coordinated with structural, architectural, and electrical disciplines to provide a comprehensive design package and worked closely with O&M staff to optimize pump station layouts and tank sizing.

### **Pure Water Monterey Advanced Water Treatment and ASR Project – Completed 2021 | *Monterey One Water, Monterey, CA* | Agency PM: Maureen Hamilton, 831.658.5622, [mhamilton@mpwmd.net](mailto:mhamilton@mpwmd.net)**

**Conveyance Engineer.** Rod prepared conceptual and detailed design of conveyance infrastructure for a groundwater injection system. He prepared a hydraulic model to validate the hydraulic design basis for the product water pump station and transmission pipeline. Facility elements included a secondary effluent pump station that provides source water for the AWTF, a new 4-mgd AWTF facility (expandable to 5.5 mgd), and a product-water pump station that conveys the advanced treated water to a groundwater injection field 8 miles from the plant. Taken together with the water purification upgrades at the plant, Monterey's Pure Water program replenishes the over-drafted aquifers while preventing seawater intrusion into the region's only potable water supply. Integration of a storage reservoir along the 8-mile transmission main helped stabilize distribution pressures under varying demand while improving the ability to expand the injection wellfield in the future.

### **Geysers Recharge System Expansion Joint Replacement – Completed 2021 | *City of Santa Rosa, CA* | Agency PM: Mike Prinz, 707.543.3836, [mprinz@srcity.org](mailto:mprinz@srcity.org)**

**Project Manager.** Rod prepared procurement documents to pre-purchase five thrust-balanced expansion joints for an existing 30-inch steel pipeline that operates at pressures up to 600 psig. The custom fabricated expansion joints were designed to allow for ground and associated pipeline movement where active landslides were identified. He prepared construction documents that included detailed requirements for dewatering the pipeline, led preparation of a traffic control plan, and facilitated local vehicle traffic along a single-lane rural road.

### **Geysers Recharge Pipeline Hydraulic Evaluations – Completed 2018 | *City of Santa Rosa, CA* | Mike Prinz, 707.543.3876, [mprinz@srcity.org](mailto:mprinz@srcity.org)**

**Project Manager.** Rod prepared detailed testing protocols used to identify locations along 40 miles of transmission pipeline (30- and 48-inch) where unexpected head losses were occurring. He also prepared test protocols that were used to measure pump performance at four medium-voltage pump stations comprising more than 20,000 hp of pumping infrastructure. Performance evaluations allowed the City to prioritize which pumps to rebuild or replace in any given year. Mapping of the hydraulic grade line showed inconsistencies in head losses along the pipeline where inspection and rehab efforts could be focused.

### **Geysers Recharge System Design – Completed 2007 | *City of Santa Rosa, CA* | Mike Prinz, 707.543.3876, [mprinz@srcity.org](mailto:mprinz@srcity.org)**

**Facilities Planner / Pump Station Project Engineer.** Rod was the principal author of the Geysers Facility Plan, which established the main infrastructure requirements and overall control scheme currently used to automate operations of the second largest capital project in the County's history. He also served in responsible charge of the Llano pump station design that included more than 5,000 hp of pumping equipment and SCADA integration that allows four pumping plants to operate simultaneously, in series, to reliably deliver more than 18 mgd to the Geysers steam fields 40 miles away.





## Jason Blum, EIT

### Conveyance Engineer

Jason is a water resource engineer, focusing on water and wastewater design. He has performed detailed design and modeling, as well as calculations per technical engineering codes and standards; conducted cost-benefit sensitivity analyses and preliminary site investigations; reviewed and responded to submittals and RFIs; produced material, time, and equipment estimates; and tracked and tabulated project equipment numbers on projects.

#### EDUCATION/ QUALIFICATIONS

BS, Civil Engineering,  
California State  
University Chico

#### REGISTRATIONS/ CERTIFICATIONS

- Engineer-in-Training  
Certificate as of  
5/7/2021, #173726

#### YEARS OF EXPERIENCE

4

#### YEARS WITH JACOBS

4

#### Why Jason?

- Familiar with AFT, AutoCAD, MicroStation, ArcGIS, WinHydro, and HEC-RAS
- Detailed design and modeling expertise
- Conveyance expertise

#### Relevant Project Experience

**College Lake Pipeline – Ongoing** | *Pajaro Valley Water Management Agency, Santa Cruz, CA* | Agency PM: Brian Lockwood, 831.722.9292, [lockwood@pvwater.org](mailto:lockwood@pvwater.org)

**Piping Discipline Lead.** The project will convey treated water from a WTP at College Lake to the existing Coastal Distribution System pipeline to deliver a more reliable, long-term water supply and prevent seawater intrusion to the Pajaro Valley. The project includes approximately 6 miles of 30-inch HDPE pipe. Jason led the sizing, material selection, design, and hydraulic analysis of the pipeline.

**Black Rascal Creek Flood Control – Completed 2023** | *Merced Irrigation District, Merced County, CA* | Agency PM: Brian Kelly, 209.354.2810, [bkelly@mercedid.org](mailto:bkelly@mercedid.org)

**Water Conveyance Engineer.** Project consisted of a perimeter levee, culverts, spillway, and training levees to create a flood control detention basin and wetland area. Jason conducted cost-benefit sensitivity analysis pertaining to the perimeter levee and spillway and aided in design of all previously mentioned project elements.

**US 97/20 Bend North Corridor Project – Completed 2023** | *Oregon Department of Transportation, Bend, OR* | Agency PM: Ron Reisdorf, 503.968.4469, [ronald.a.reisdorf@odot.state.or.us](mailto:ronald.a.reisdorf@odot.state.or.us)

**Utility Design Engineer.** The project includes a realignment of US 97, improved intersections, new ramp connections at critical locations to improve local and highway traffic, and pedestrian and bicycle facilities. Jason assisted with the design of several water/sewer realignments and services during construction.

**California Intake(s) – Completed 2022** | *Confidential Client, Sacramento, CA*

**Engineer.** The project consisted of the layout and design of three 3,000 cfs river intake facilities. Each facility included an alternatives study for fish screen technology, intake structure placement, sizing, and configuration, river sediment analysis, sedimentation basin sizing and sediment captured quantities analysis based on particle settling velocities, hydraulic design of large radial gates structures, and general site/civil consideration. Jason assisted with site investigation, drawing backchecking, generating figures in ArcGIS to accompany river modeling data, and aiding in the development of various TMs and river model reports.

**Mendota Pool Fish Screen – Completed 2021** | *Central California Irrigation District, Mendota, CA* | 209.826.5176

**Water Conveyance Engineer.** The project includes the construction, operation, and maintenance of the Mendota Pool Bypass and improvements in the San Joaquin River. The project consists of a floodplain width that conveys at least 4,500 cfs, a method to bypass restoration flows around Mendota Pool, and a method to deliver water to Mendota Pool. Jason aided in the design, hydraulic modeling, and analysis of the fish recapture facility.





## Wayne Ohlin, PE

### Quality Control Manager

Wayne's engineering design experience includes conveyance pipelines and associated infrastructure and civil/site design for water resources projects. His detailed areas of knowledge focus on water distribution systems, utility management, and construction management. Conveyance experience includes conveyance and distribution facilities design, system operation, hydraulic modeling, instrumentation and control design and start-up, and construction management.

#### EDUCATION/ QUALIFICATIONS

BS, Civil Engineering  
(Water Resource  
Engineering  
Specialization), California  
State University

#### REGISTRATIONS/ CERTIFICATIONS

- Professional Engineer:  
CA (No. 72287)

#### YEARS OF EXPERIENCE

21

#### YEARS WITH JACOBS

16

Department of Reclamation.

#### Why Wayne?

- Conveyance infrastructure design management experience
- Expertise on large-scale water conveyance systems
- Construction management experience on pipeline and pump station projects

#### Relevant Project Experience

**Sites Reservoir Conveyance Facilities – Ongoing** | *Sites Authority, Maxwell, CA* | Agency PM: Jerry Brown, 530.438.2309, [jbrown@sitesproject.org](mailto:jbrown@sitesproject.org)

**Design Manager.** Wayne is managing and coordinating a multidiscipline design team for the 1.5 million acre-foot reservoir north of Sacramento. This off-stream reservoir includes the construction of more than 4 miles of 12-foot-diameter piping, two interim reservoirs, two 2,100-cfs pumping plants (12 8,000hp pumps in one pumping plant, 12 9,000hp pumps in the second pumping plant), and two turbine generator facilities capable of 40 MW of power generation. The new off-stream reservoir will store water during high-flow periods in the Sacramento River for use during drier periods. Design requires coordination with many local, state, and federal agencies including DWR, USACE, NMFS, State Reclamation Board, and the U.S.

**Southeast Connector Reclaimed Water Pipeline Relocation – Completed 2017** | *Washoe County, Reno, NV* | Agency PM: Alan Jones, 775.954.4651, [ajones@washoecounty.us](mailto:ajones@washoecounty.us)

**Conveyance Design Engineering Lead.** The project consisted of 2 miles of 30-inch ductile iron pipe relocation for the City of Reno's reclaimed water pipeline. The relocation was needed to allow for the construction of a new transportation corridor through east Reno. The project required close coordination between the municipal utility owner and the roadway commission funding the project to successfully realign the existing reclaimed water line out of the alignment of the proposed roadway.

**Fish Screen and Pumping Plant, Fish Passage Improvement at Red Bluff Diversion Dam – Completed 2013** | *Tehama-Colusa Canal Authority (TCCA), Red Bluff, CA* | Agency PM: Jeff Sutton, 530.934.2125, [jsutton@tccanal.com](mailto:jsutton@tccanal.com)

**Design and Resident Engineer.** Wayne designed fish screen and canal facilities and provided on-site resident engineering during construction. The project included an 1,118-foot-long fish screen structure, forebay, civil/site improvements, open channel and siphon to convey water from the pumping plant to a settling basin that feeds the TCCA canal system, and a 660-foot bridge across Red Bank Creek to provide site access to a 2,500-cfs pumping plant designed by Reclamation. TCCA serves irrigation water to 17 member water districts in the upper Sacramento Valley.

**Iron Mountain Mine Tailings Dredging and Clean-up – Completed 2011** | *U.S. Environmental Protection Agency, Redding, CA* | Agency PM: Cynthia Wetmore, 415.972.3059, [wetmore.cynthia@epa.gov](mailto:wetmore.cynthia@epa.gov)

**Design and Resident Engineer.** Wayne participated in the conveyance design, installation, construction management, and operation of the sediment dredging system at the EPA Superfund Site. The project was one of the first and largest ARRA-funded projects for environmental cleanup and included more than 4 miles of HDPE piping, three lift stations, and lime and polymer injection to transport mine waste sediments from the Spring Creek Arm of the Keswick Reservoir to a 17-acre lined containment cell for processing and clean-up. He also participated in regular sampling events related to rainfall runoff and other acid mine drainage issues.

**Emory Poundstone Pumping Plant and Fish Screens – Completed 2009 | *Reclamation District 108, Grimes, CA* | Agency PM: Lewis Blair, 530.979.1536, [lblair@rd108.org](mailto:lblair@rd108.org)**

**Testing Engineer.** Wayne conducted field testing of the pumping plant and associated facilities after completion of construction. He coordinated with permitting agencies to receive final approval of facility commissioning. RD 108 diverts Sacramento River water to irrigate 48,000 acres of rice, orchards, and row crops. Facilities included a 300-cfs combined fish screen and pumping plant structure, automated sediment removal system and brush cleaner for fish screens, sheet pile retaining walls, a log boom, canal, afterbay, and irrigation measurement and delivery structures. The project also included 4.3 miles of concrete-lined canal, seven automated check structures with automatic flow control gates, five farm bridges, three automated lateral head gates, SCADA improvements, 28 field turnouts, 4,600 feet of subsurface drainage tile, two low-head pump stations, and a 72-inch-diameter, 200-foot-long siphon.

**Refuge Water Supply – Completed 2009 | *Glenn-Colusa Irrigation District (GCID), Willows, CA* | Agency PM: Thad Bettner, 530.934.8881, [tbettner@gcid.net](mailto:tbettner@gcid.net)**

**Hydraulic Modeler.** Wayne performed modeling of the GCID irrigation system, using GOLDSIM software, to develop a water balance of the District. He prepared portions of final feasibility study based on modeling results. The feasibility study identified \$20M of necessary improvements to enable GCID to provide year-round water deliveries for winter rice field flooding to benefit waterfowl and year-round water deliveries to growers to support changes in crop patterns.

**Sankey Diversion Fish Screen/Pumping Plant – Completed 2007 | *Natomas Mutual Water Company, Rio Linda, CA* | Agency PM: Brett Gray, 916.826.7672, [bgray@natomaswater.com](mailto:bgray@natomaswater.com)**

**Design Manager.** Wayne managed and coordinated a multidiscipline design team for the 434-cfs screen and pumping plant on the Sacramento River north of Sacramento. The new diversion structure includes vertical-plate fish screens and a brush-type traveling screen cleaner. Design included levee penetration for pump station discharge pipelines, which had to be coordinated with the USACE, NMWC, State Reclamation Board, and Reclamation District 1000. Three-dimensional design of the Natomas project was essential to coordinate design of the discharge pipes and achieve USACE approval.

**Tisdale Positive Barrier Fish Screen – Completed 2006 | *Sutter Mutual Water Company, Meridian, CA* | Agency PM: Max Sakato, 530.738.4423**

**Resident Engineer.** Wayne served as on-site resident engineer during construction. He responded to contractor questions and performed field engineering calculations, coordinated with funding and permitting agencies during construction, and conducted field testing of pumping plant after completion of construction. The project involved a pile-founded concrete 290-foot-long, 22-foot-wide, 40-foot-high screen structure; screen cleaner mechanism; 150-hp pump-driven sediment removal system; sheet pile-constructed approach roads; forebay and sheet pile retaining walls; new intake and flap gates for the intakes of Pumping Plants 1 and 2; repair of levee tubes for Pumping Plant 1 and new 60-inch pump discharge piping for Pumping Plant 2.

**Sacramento Valley Water Management Agreement Regional Plan – Completed 2005 | *California Department of Water Resources, Bureau of Reclamation, Sacramento Valley Water Interests, and Export Water Users, Sacramento Valley, CA* | Agency PM: Nancy Parker, 303.594.0026, [nparker@usbr.gov](mailto:nparker@usbr.gov)**

**Staff Engineer.** Wayne contributed to technical studies and reports prepared pursuant to developing a regional water management plan that supports the historic Sacramento Valley Water Management Agreement. This unprecedented Agreement establishes a process by which the parties are collaborating to develop and implement water management projects that will increase the availability of Sacramento Valley water resources.

## 4. Firm Qualifications

**Firm's Complete Name:** Jacobs Engineering Group Inc.

**Type of Firm:** Corporation

**Contact Person:** Michael Randall

**Contact Phone:** 530.945.2961

**Contact Fax:** 916.920.8463

**Contact Email:** michael.randall@jacobs.com

**Principal Officers/Authority to Bind the Firm:** The tables below list Board of Directors and Officers for Jacobs Engineering Group Inc. All those listed have authority to bind the firm in a contractual agreement.

### Board of Directors

Name	Position
Stephen A. Arnette	Director
Kevin Christopher Berryman	Director
Robert V. Pragada	Chair of the Board / Director

### Officers

Name	Position
Jason Adkisson	Assistant Secretary
William "Billy" B. Allen	Senior Vice President and Chief Accounting Officer
Stephen A. Arnette	President, Critical Mission Solutions / Executive Vice President
David Ashman	Director of Operations, South Florida & Puerto Rico
Ayan Banerjee	Senior Vice President, Financial Planning & Analysis, and Treasury
Amer Anwar Battikhi	Senior Vice President, Platforms, Technologies & Software Solutions
Kevin Christopher Berryman	Chief Financial Officer
Katie Bloom	Designated person responsible for practice of Environmental
Michael Bunderson	Vice President, Tax
Joanne E. Caruso	Chief Administrative Officer / Chief Legal Officer / Executive Vice President
Gwen Clavon	Senior Vice President, Cyber & Intelligence
Levitte Cox	Vice President
Tina Delisle	Senior Manager Payroll
Jan Walstrom	Senior Vice President / Global Market Director, Environmental
Imad Feghali	Senior Vice President, Global Program Management
Kathleen Glaser	Senior Vice President, Solution Delivery Digital Enablement
Shelette M. Gustafson	Chief People & Inclusion Officer / Executive Vice President
Taggart Hansen	Chief Compliance Officer / Senior Vice President & Deputy General Counsel
Jason Helsing	Senior Director Tax
Brian Lee Hendon	Designed person responsible for practice of Architecture
Chastity Henry	Assistant Secretary
Rich Hicks	Manager, Ohio Engineering Operations
Patrick Hill	Executive Vice President and President, People & Places Solutions
Cory Hooper	Vice President, Florida Operations
Priya Howell	Assistant Secretary
Chin Chang "Mike" Hsu	Treasurer
Justin Johnson	General Counsel / Senior Vice President / Secretary
Doug Jones	Senior Vice President, HR – Total Rewards

### Officers

Name	Position
Dale Jones	Director of Operations, Georgia & Orlando
Keith B. Jones	Manager, Ohio Land Surveying Operations
Katherine Helen Kenny	Senior Vice President & GM, P&PS Europe
Michael Laity	Senior Director Tax
Keith Lawson	Senior Vice President, P&PS, APME & Europe
Alberto Lazaro	Vice President, Sales
Miguel Lopez-Dubois	Manager, California Engineering Operations
Kevin Maloney	Manager, California Engineering Operations
Shannon Miller	President, Divergent Solutions / Executive Vice President
Victorino Montellano	Manager, California Engineering Operations
Brett Nein	Vice President, Florida Landscape Architecture Operations
John G. Owens	Designated person responsible for Electrical Engineering in Alaska
Mark J. Parent	Designated person responsible Structural Engineering in Alaska
Dawn Pinto	Senior Vice President, Critical Mission Solutions Finance
Robert V. Pragada	Chief Executive Officer
Elizabeth A. Refinski	Assistant Secretary
Cristian Scarlat	Manager, California Engineering Operations
Brian Scher	Assistant Secretary
Jeffrey David Sever	Designated person responsible for practice of Mechanical Engineering
David Stejskal	Director of Operations, Southeast & North Florida
Scott Strauss	Vice President – Authorized Signer
Chrissy Thom	Senior Vice President & GM, Americas East
Vinay Uchil	Vice President, Florida Engineering Operations
Koti Vadlamudi	Senior Vice President & GM, P&PS, Advanced Facilities
Ronald Wallace	Senior Vice President, Operations Support, CMS
Thomas Mark Walter	Senior Vice President, CMS AERO Business Unit
William Kirkpatrick Warnock	Manager, California Engineering Operations
Katus Watson	Senior Vice President & GM P&PS, Americas West / Vice President, Operations Manager for Texas and Oklahoma
Louise White	Senior Vice President, Marketing, Communications & Brand
Aaron Willis	Manager, California Land Surveying Operations
Scott E. Young	Managing Agent of Oklahoma Engineering Ops

## Specific and Relevant Experience

Our reference projects highlight our team's ability to deliver similar-sized pipeline design projects. These projects demonstrate our ability to address a variety of challenges, including schedule requirements, funding, construction sequencing, permit compliance, trenchless crossings, traffic control, agricultural landscapes, and the interests of the stakeholders. The table below highlights our reference projects' relevance to this scope. Detailed information on each project in the table can be found following the table.

**Table 5 – Relevant Experience**

Key Project Name / Client / Location	Relevant Challenges/Scope Items				
	Recycled Water Route Study	Advanced WW Treatment	Preliminary Design Report	Similar Size and Scale	Work Involving LACOSAN
<b>2004 FCEP PDR, Lake County Special Districts</b> Lakeport, CA	✓	✓	✓	✓	✓
<b>Calpine Tertiary Recycled Water Treatment Study, Calpine Corporation</b> Lake County, CA	✓	✓	✓	✓	✓
<b>F-Line Pipeline, PV Water</b> Pajaro, CA	✓	✓	✓	✓	
<b>Geysers Recharge Project, City of Santa Rosa</b> Santa Rosa, CA	✓	✓	✓	✓	
<b>Harvest Water Program, Regional San</b> Sacramento, CA	✓	✓	✓	✓	
<b>Lake County MSA, Lake County Special Districts</b> Lake County, CA		✓	✓	✓	✓
<b>El Portal WWTF Rehabilitation / NPS</b> El Portal, CA		✓	✓	✓	
<b>South Yuba County Sanitary Sewer Infrastructure Study, OPUD</b> Yuba City, CA	✓	✓	✓	✓	

## Subconsultants

Jacobs can provide the requested services in-house and does not anticipate the need for including subconsultants on our team at this time.



# Full Circle Effluent Pipeline Preliminary Design Report

*Lakeport, CA*

## CLIENT NAME

Lake County Special Districts

## CLIENT REFERENCE

Scott Harter

707.263.0119

[scott.harter@lakecountyca.gov](mailto:scott.harter@lakecountyca.gov)

## PROJECT DURATION

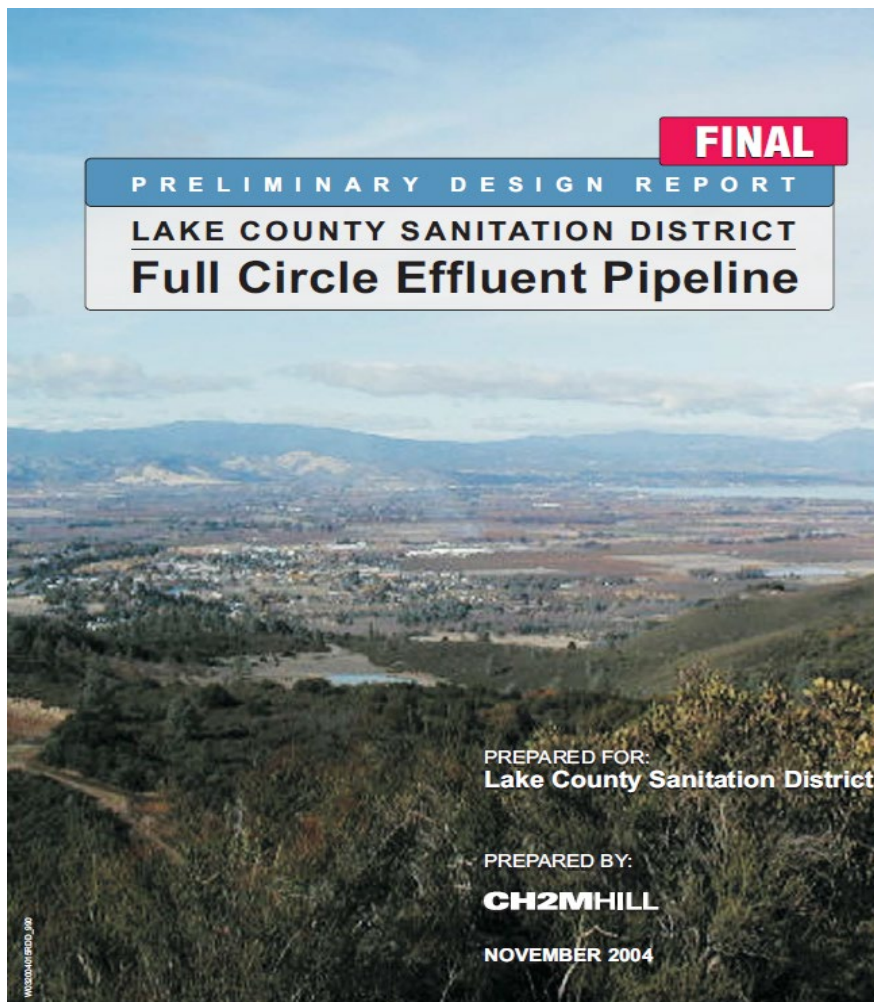
2002—2004

## JACOBS' ROLE ON THE PROJECT

Prime

## RELEVANCE TO THIS PROJECT:

- Previous evaluation for the project
- Similar evaluation
- Understanding of specific project needs



## Project Description

In 2004, Jacobs prepared the preliminary design report (PDR) for the Full Circle Effluent Pipeline (FCEP). The goal of the FCEP was to convey treated wastewater from existing wastewater treatment plants (WWTPs) at Lakeport and Kelseyville around the south side of Clear Lake and inject this flow into the existing Southeast Geysers Effluent Pipeline (SEGEP) near Lower Lake for Geysers injection. To maximize flexibility for effluent reuse and improve injection quality, as well as reduce pipeline-fouling potential, the effluent from both Lakeport and Kelseyville WWTPs may be treated to tertiary (California Title 22) standards. For reliability and redundancy reasons, as well as implementation considerations, water may be drawn from Clear Lake and injected in the system, and water in the system may be used for agricultural irrigation along the pipeline alignment. This work was given the name “Full Circle” because it continues the reuse of treated wastewater from wastewater treatment plants encircling Clear Lake.

# Calpine Tertiary Recycled Water Treatment Study

*Lake County, CA*

## CLIENT NAME

Calpine Corporation

## CLIENT REFERENCE

Tim Conant

707.431.6000

[tim.conant@calpine.com](mailto:tim.conant@calpine.com)

## PROJECT DURATION

2020—2021

## JACOBS' ROLE ON THE PROJECT

Prime

## RELEVANCE TO THIS PROJECT:

- Same project evaluated for geothermal operator needs
- Similar evaluation on the wastewater side
- Understanding of specific project needs



## Project Description

The Geysers Power Company, LLC, a wholly owned subsidiary of the Calpine Corporation (Calpine), owns and operates multiple geothermal power plants within the Geysers, located in Sonoma, Lake, and Mendocino counties. Calpine has been using treated effluent from LACOSAN's facilities through the Southeast Geysers Effluent Project (SEGEP), a 26-mile pipeline delivering up to 9.2 mgd of disinfected secondary effluent. Calpine has also been using disinfected tertiary recycled water from Santa Rosa via a 42-mile pipeline known as the Santa Rosa Geysers Recharge Project (SRGRP) since 2003. With prolonged drought and aging infrastructure in the SRGRP, Calpine is seeking to convert the SEGEP into a disinfected tertiary recycled water system to provide greater flexibility in utilizing recycled water from two sources. Jacobs reviewed regulatory requirements for converting SEGEP into disinfected tertiary recycled water and assessed the options to add tertiary filtration and a disinfection system into the system. Challenges included high variability in wastewater flows with wet weather conditions while LACOSAN needs to dispose all effluent through SEGEP, inclusion of the Middletown Wastewater Treatment Plant (WWTP), located 18 miles from the Southeast WWTP along the pipeline to the Geysers power plants, and inclusion of water from Clear Lake to the SEGEP water supply to maintain flows to Geysers during dry seasons. The evaluation included a modular-type tertiary filtration system and the use of the SEGEP pipeline as a chlorine contact process, along with addition of a tertiary treatment system at the Middletown WWTP.

# F-Line Pipeline

*Pajaro, CA*

## CLIENT NAME

Pajaro Valley Water  
Management Agency  
(PV Water)

## CLIENT REFERENCE

Brian Lockwood  
831.722.9292  
[lockwood@pvwater.org](mailto:lockwood@pvwater.org)

## PROJECT DURATION

2013—2020

## JACOBS' ROLE ON THE PROJECT

Prime

## RELEVANCE TO THIS PROJECT:

- Use of recycled water decreased the need to divert water from sensitive ecosystems
- Decreased wastewater discharges
- Decreased dependency on already severely impacted groundwater supply



## Project Description

Jacobs was responsible for the F-line pipeline design, which will enable the use of reclaimed water for supplemental irrigation to 1,300 acres.

The Pajaro Valley Water Management Agency (PV Water) is expanding its existing Coastal Distribution System (CDS) to provide a supplemental supply of irrigation water to a 5,100-acre service area in Monterey and Santa Cruz counties.

The proposed F-Line pipelines will branch off the existing CDS to provide reclaimed water for agricultural irrigation to an agricultural area along San Andreas Road in Santa Cruz County that is currently on a groundwater supply severely impacted by seawater intrusion. The F-line pipeline system is composed of approximately 3 miles of high-density polyethylene (HDPE) distribution piping ranging from 10 to 30 inches in diameter and 14 agricultural turnouts designed to provide approximately 28,870 acre-feet-per-year (afy) of supplemental irrigation water to 1,300 irrigated acres within the existing 5,100-acre service area.



# Harvest Water Program

*Sacramento, CA*

## CLIENT NAME

Sacramento Regional  
County Sanitation District  
(Regional San)

## CLIENT REFERENCE

Mike Crooks, PE  
916.875.9416  
[crookssm@sacsewer.com](mailto:crookssm@sacsewer.com)

## PROJECT DURATION

2022—2023 (Design)  
2023—2025 (Construction)

## JACOBS' ROLE ON THE PROJECT

Prime

## RELEVANCE TO THIS PROJECT:

- Designed to reclaimed water standards
- Environmental constraints
- Long pipelines in roads



*Field investigation for Harvest Water route study.*

## Project Description

Regional San is developing the Harvest Water Program to meet its long-term goals of increasing the production and use of recycled water. The program will provide up to 50,000 acre-feet per year of tertiary recycled water from the Sacramento Regional Wastewater Treatment Plant (SRWTP) for use in lieu of pumped groundwater to irrigate crops on permanent agriculture lands as well as for ecological beneficial uses in southern Sacramento County. The Regional San Policy and Planning department has secured \$280M of capital funding through the Water Storage Investment Program (WSIP), administered by the California Water Commission (CWC). The program includes construction of one pumping station located at the SRWTP, up to 44 miles of transmission and distribution pipelines ranging in size from 12 to 66 inches, and appurtenant facilities, including more than 100 on-farm connections (turnouts). For implementation purposes, the Program was segregated into four projects: the pump station located at the SRWTP, the transmission pipelines (larger diameter from SRWTP), distribution pipelines located within the growing areas, and the turnouts from the pipelines to the growers. Jacobs is designing approximately 27 miles of recycled water distribution pipelines ranging from 48-inch welded steel to 14-inch HDPE. These facilities will be segregated into two packages: the West Distribution Pipelines and the Central-South Distribution Pipelines. The packages are comprised of 11 trenchless crossings (including three UPRR crossings), most of which will be constructed using auger boring or pipe ramming methodology. Pipeline design included planning for construction within narrow roadway construction corridors, corrosion protection alongside existing gas and electrical utilities, and planning around specific environmental restrictions. A subsurface utility investigation, including detailed survey of rural irrigation piping, was completed to reduce risk of conflicts during construction. A pavement analysis was also completed to understand the integrity of the existing pavement and provide options for pavement replacement. Close coordination with the other design packages was critical for seamless pipeline connection points and demarcations with more than 80 on-farm turnouts within the two packages. The team is providing bid and award support services during construction including submittal review, requests for information (RFIs) assistance, start-up, and close-out.

# Lake County Master Services Agreement

*Lake County, CA*

## CLIENT NAME

Lake County Special Districts

## CLIENT REFERENCE

Scott Harter

707.263.0119

[scott.harter@lakecountyca.gov](mailto:scott.harter@lakecountyca.gov)

## PROJECT DURATION

2010—Present

## JACOBS' ROLE ON THE PROJECT

Hydraulic modeling (sewer and water system) and on-call SCADA support

## RELEVANCE TO THIS PROJECT:

- Work on water and wastewater facilities around the county for Lake County Special Districts
- Long track record of delivering planning and design services for Lake County Special Districts
- Familiarity with institutional knowledge of the Kelseyville and Middletown WWTPs, as well as the existing SEGEP



## Project Description

### Kelseyville WWTP Upgrades

Jacobs provided design for the upgrade of the facility. Two 60-hp pumps were replaced with two 200-hp pumps and a backup generator was added.

The project also included converting existing ponds to aeration ponds. Jacobs designed an electrical system to support addition of aerators as well.

### New Development Capacity Evaluations

Jacobs supports the District in the evaluation of new development impacts to the collection systems, lift stations, and treatment facilities within Lake County. This past calendar year Jacobs completed four of these evaluations to support impact fee and capacity expansion projects within the District.

### SCADA Support at North Lakeport WTP, Southeast Regional Wastewater System, and Northwest Regional Wastewater System

Over the years, Jacobs has provided ongoing support of the collection system and treatment plant SCADA systems for the District. We recently prepared a high-level SCADA Master Plan to aid the District in developing a systematic upgrade/replacement of its existing PLCs and communication network for the Southeast Collection system.



# El Portal WWTF Rehabilitation

*El Portal, CA*

## CLIENT NAME

National Park Service (NPS)

## CLIENT REFERENCE

Mike Luecker

(El Portal WWTP)

303.913.7005

[michael.luecker@nps.gov](mailto:michael.luecker@nps.gov)

## PROJECT DURATION

2022—2024

## JACOBS' ROLE ON THE PROJECT

Prime: Designer of Record

## RELEVANCE TO THIS PROJECT:

- Wastewater treatment plant
- PD, SD, DD, SS
- Key Work Types
- Key Scope Elements
- Key scope metric
- Nature-based resilience solutions (climate change, etc.



## Project Description

The National Park Service (NPS) engaged Jacobs on several different projects at the Yosemite National Park in California, requiring our A/E service expertise in wastewater treatment plants. This project rehabilitates the 45-year-old plant located at El Portal, currently nominally sized at 1 mgd to improve treatment efficiency to meet current standards for a wide range of seasonal flow conditions. We provided schematic design services including alternatives and recommendations for priorities and paths forward and are currently providing detailed design services for the El Portal WWTP.

**Size:** 1 mgd wastewater treatment

**Cost:** total TO \$4,251,000 (fees); total estimated construction value \$114M (construction)

## Project Services

### *Rehabilitate Wastewater Treatment Plant*

Jacobs is currently providing Detailed Design documents for rehabilitation the El Portal WWTF at Yosemite NP. Working collaboratively with NP staff, the Predesign and Schematic Design included extensive evaluation of alternatives, including construction and lifecycle cost analysis and non-economic factors. The Jacobs team identified missing information regarding assumptions on the influent flows and process loads and created a Facility Plan to correctly size the treatment process. While the Facility Plan is not a typical NPS delivery task, it provided an early opportunity to optimize the treatment process and will result in meeting tight schedule requirements, minimize changes in the design, and streamline the schematic design phase. Close collaboration with NPS staff, especially those at the El Portal WWTP, has led to a high level of trust, effective communication, and early focus on optimal solutions. A Supervisory Control and Data Acquisition (SCADA) system masterplan was also developed to include a communications plan for all water and wastewater infrastructure within the El Portal service area.

## Supplemental Services

### *Coordination and Specialized Services*

A wide variety of supplemental services have been performed at the El Portal WWTF, including surveying, subsurface utility locating, aerial mapping, geotechnical investigations, corrosion evaluations, hazardous materials investigations, wastewater sampling and testing, remote site communications and control systems investigations, and odor control studies.

## Challenges and Opportunities

### *Continuous Plant Operation and Safety During Construction*

The existing treatment process must remain in continuous operation throughout all rehabilitation construction work. The current facilities are highly integrated with each other, without many places where construction phasing could occur. The design team, in close collaboration with NPS staff, have created a plan to construct new treatment facilities within the current plant area while keeping the existing process operational. The plan will reduce the construction time while keeping interactions and interfaces between plant staff and construction crews minimized. This greatly increases safety for everyone by allowing each group to work independent of each other.

## Project Highlights

### *Increased Staff Safety and Code Compliance*

In addition to providing NPS with a modern treatment process that is correctly sized for their current and future needs, this project is addressing many safety concerns for plant staff. Improving access to equipment and facilities, adding mechanical lift capability, designing buildings for code compliance, and upgrading the fire fighting capacity are addressed in this project. The selection of chemicals used in the process have considered safety and the decision to change from anaerobic to aerobic digestion of solids removes exposure of personnel to methane gas and the fire hazards that it creates.

# South Yuba County Sanitary Sewer Infrastructure Study and Water and Wastewater Improvements Design

Olivehurst, CA

## CLIENT NAME

Olivehurst Public Utility District (OPUD)

## CLIENT REFERENCE

John Tiltonson

530.743.0317

[jtiltonson@opud.org](mailto:jtiltonson@opud.org)

## PROJECT DURATION

2020—Present

## JACOBS' ROLE ON THE PROJECT

Prime

## RELEVANCE TO THIS PROJECT:

- 21.5 miles of pipeline
- Pump and lift stations
- Wastewater treatment plant improvements

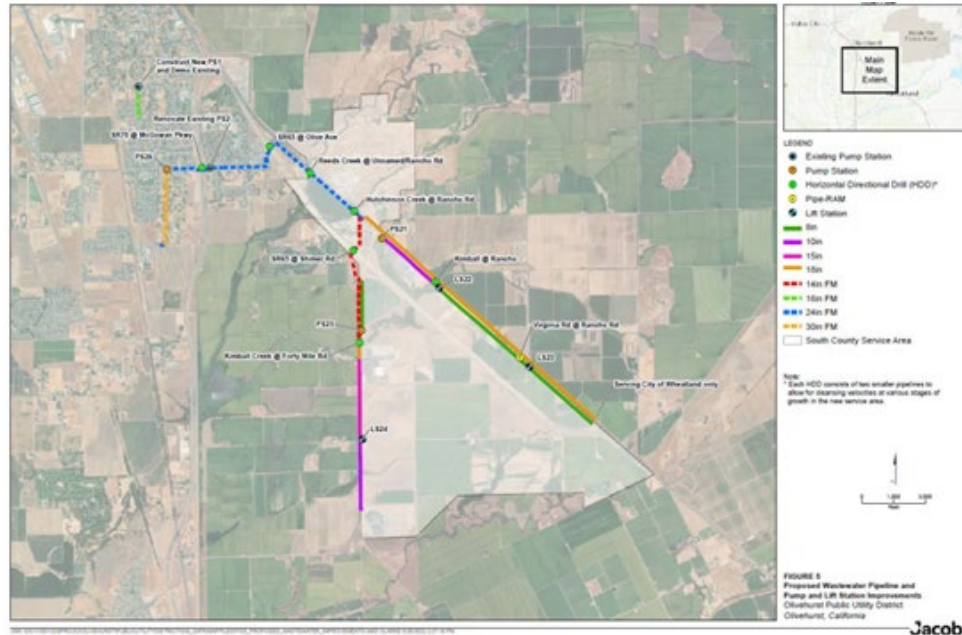


Figure 5. Proposed Wastewater Pipeline and Pump and Lift Station Improvements

## Project Description

Jacobs previously conducted a major wastewater treatment plant expansion beginning in 1975 and is again providing engineering design services for a feasibility study; preliminary engineering; preparation of plans, specifications, and estimate packages; environmental and regulatory permitting; grant application and funding support; and overall project management and quality assurance/quality control. Jacobs is currently the prime consultant for the design of the water and wastewater system improvements, which consists of:

- Approximately 21.5 miles of water and sewer force mains and gravity sewers ranging in size from 8 to 30 inches in diameter
- Five sewer pump station and three lift stations
- Wastewater treatment plant improvements
- A new water plant

This project demonstrates our capabilities and depth of resources, helping us maintain momentum and keep the project moving forward. Originally, OPUD had two separate requests for proposals (RFPs): one for water system improvements and one for wastewater improvements. Jacobs proposed packaging both water and wastewater improvements together into a single project, with a set of plans and specifications for subsequent bidding.

The primary advantages of this approach include more than \$1M in design cost savings, coordinated and consistent contract documents, and the ability to have a single construction contractor instead of two separate contractors working in the same general areas. Furthermore, the project now incorporates regional stakeholder participation (i.e., City of Wheatland), land acquisition, CWSRF funding, and other requirements.

Wastewater treatment plant improvements include adding a new fine screen; washer/compactor; grit chamber pump; classifier; motor, controls, and appurtenance replacement; new influent pump; adding wet well mixing; replacement of three existing pumps; deepening and concrete lining the existing equalization storage basin; adding a new dewatering pump station; oxidation ditch gearbox and motor replacement; adding a new secondary clarifier; adding filtration disk; UV system replacement; and SCADA and other ancillary support facility improvements.

**Contact:**

**Michael Randall | Project Manager**

Jacobs Engineering Group Inc.

530.229.3375

2525 Airpark Drive

Redding, CA 96001



**AGREEMENT FOR ENGINEERING AND DESIGN SERVICES FOR  
LAKE COUNTY SANITATION DISTRICT (LACOSAN) FULL CIRCLE  
EFFLUENT PIPELINE AN UPDATE TO THE 2004 PRELIMINARY  
DESIGN REPORT**

**EXHIBIT “B” – FISCAL PROVISIONS**

**1. CONSULTANT’S FINANCIAL RECORDS.** Consultant shall keep financial records for funds received hereunder, separate from any other funds administered by Consultant, and maintained in accordance with Generally Accepted Accounting Principles and Procedures and the Office of Management and Budget’s Cost Principles.

**2. INVOICES.**

2.1 Consultant’s invoices shall be submitted in arrears on a monthly basis, or at such other time that is mutually agreed upon in writing and shall be itemized and formatted to the satisfaction of the County.

2.2 County shall make payment within 20 business days of an undisputed invoice for the compensation stipulated herein for supplies delivered and accepted or services rendered and accepted, less potential deductions, if any, as herein provided. Payment on partial deliverables may be made whenever amounts due so warrant or when requested by the Consultant and approved by the Assistant Purchasing Agent.

**3. AUDIT REQUIREMENTS AND AUDIT EXCEPTIONS**

3.1 Consultant warrants that it shall comply with all audit requirements established by County and will provide a copy of Consultant’s Annual Independent Audit Report, if applicable.

3.2 County may conduct periodic audits of Consultant’s financial records, notifying Consultant no less than 48 hours prior to scheduled audit. Said notice shall include a detailed listing of the records required for review. Consultant shall allow County, or other appropriate entities designated by County, access to all financial records pertinent to this Agreement.

3.3 Consultant shall reimburse County for audit exceptions within 30 days of written demand or shall make other repayment arrangements subject to the approval of County.

**4. BUDGET.** The Consultant shall submit, in advance, a detailed budget, in the format provided by County for review and approval by the County. Consultant shall be compensated only for expenses included in the approved budget. Modification to the budget must be approved in advance by the County.

**5. EXPENDITURE OF FUNDS.**

5.1 Funds payable through this agreement shall not be used to purchase food or promotional merchandise or to attend conferences unless specifically approved in the budget.

5.2 County reserves the right to refuse payment to Consultant or disallow costs for any expenditure determined to be unreasonable, out of compliance, or inappropriate to the services provided hereunder.

**AGREEMENT FOR ENGINEERING AND DESIGN SERVICES FOR  
LAKE COUNTY SANITATION DISTRICT (LACOSAN) FULL CIRCLE  
EFFLUENT PIPELINE AN UPDATE TO THE 2004 PRELIMINARY  
DESIGN REPORT**

**EXHIBIT “C” – COMPLIANCE PROVISIONS**

1. **INFORMATION INTEGRITY AND SECURITY.** Consultant shall immediately notify County of any known or suspected breach of personal, sensitive and confidential information related to Consultant ’s work under this Agreement.
2. **NON-DISCRIMINATION.** Consultant shall not unlawfully discriminate against any qualified worker or recipient of services because of race, religious creed, color, sex, sexual orientation, national origin, ancestry, physical disability, mental disability, medical condition, marital status or age.
3. **DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**
  - 3.1 The Consultant certifies to the best of its knowledge and belief, that it and its subConsultant s:
    - A. Are not presently debarred, suspended, proposed for disbarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
    - B. Have not, within a three-year period preceding this Agreement, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction; violation of federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
    - C. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity with commission of any of the offenses enumerated in the preceding paragraph; and
    - D. Have not, within a three-year period preceding this Agreement, had one or more public transactions terminated for cause or default.
  - 3.2 Consultant shall report immediately to County, in writing, any incidents of alleged fraud and/or abuse by either Consultant or Consultant ’s subcontractor . Consultant shall maintain any records, documents, or other evidence of fraud and abuse until otherwise notified by County.
4. **AGREEMENTS IN EXCESS OF \$100,000.** Consultant shall comply with all applicable orders or requirements issued under the following laws:
  - 4.1 Clean Air Act, as amended (42 USC 1857).
  - 4.2 Clean Water Act, as amended (33 USC 1368).
  - 4.3 Federal Water Pollution Control Act, as amended (33 USC 1251, et seq.)
  - 4.4 Environmental Protection Agency Regulations (40 CFR and Executive Order 11738).
5. **INDEMNIFICATION AND HOLD HARMLESS**

**AGREEMENT FOR ENGINEERING AND DESIGN SERVICES FOR  
LAKE COUNTY SANITATION DISTRICT (LACOSAN) FULL CIRCLE  
EFFLUENT PIPELINE AN UPDATE TO THE 2004 PRELIMINARY  
DESIGN REPORT**

Each party shall indemnify and hold the other harmless against all actions, claims, demands, and liabilities and against all losses, damage, cost, expenses, and attorney=s fees, arising directly or indirectly out of an actual or alleged injury to a person or property in the same proportion that its own acts and/or omissions are attributed to said claim, demand, liability, loss, damage, cost, expenses, and/or attorney=s fees. This provision shall not extend to any claim, demand, liability, loss, damage, cost, expenses, and/or attorney=s fees covered by the insurance of either party.

Consultant's obligations under this Section shall survive the termination of the Agreement.

**6. STANDARD OF CARE.** Consultant represents that it is specially trained, licensed, experienced and competent to perform all the services, responsibilities and duties specified herein and that such services, responsibilities and duties shall be performed, whether by Consultant or designated subcontractors, in a manner according to generally accepted practices.

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**7. INTEREST OF CONSULTANT.** Consultant assures that neither it nor its employees have any interest, and that it shall not acquire any interest in the future, direct or indirect, which would conflict in any manner or degree with the performance of services hereunder.

**8. DUE PERFORMANCE – DEFAULT.** Each party agrees to fully perform all aspects of this agreement. If a default to this agreement occurs then the party in default shall be given written notice of said default by the other party. If the party in default does not fully correct (cure) the default within \_\_\_\_ days of the date of that notice (i.e. the time to cure) then such party shall be in default. The time period for corrective action of the party in default may be extended in writing executed by both parties, which must include the reason(s) for the extension and the date the extension expires.

Notice given under this provision shall specify the alleged default and the applicable Agreement provision and shall demand that the party in default perform the provisions of this Agreement within the applicable time period. No such notice shall be deemed a termination of this Agreement, unless the party giving notice so elects in that notice, or so elects in a subsequent written notice after the time to cure has expired.

**9. INSURANCE.**

9.1 Consultant shall procure and maintain Workers' Compensation Insurance for all of its employees.

9.2 Consultant shall procure and maintain Comprehensive Public Liability Insurance, both bodily injury and property damage, in an amount of not less than one million dollars (\$1,000,000) combined single limit coverage per occurrence, including but not limited to endorsements for the following coverage: personal injury, premises-operations, products and completed operations, blanket contractual, and independent Consultant 's liability.

9.3 Consultant shall procure and maintain Comprehensive Automobile Liability Insurance, both bodily injury and property damage, on owned, hired, leased and non-owned vehicles used in

**AGREEMENT FOR ENGINEERING AND DESIGN SERVICES FOR  
LAKE COUNTY SANITATION DISTRICT (LACOSAN) FULL CIRCLE  
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DESIGN REPORT**

connection with Consultant 's business in an amount of not less than one million dollars (\$1,000,000) combined single limit coverage per occurrence.

9.4 Consultant shall procure and maintain Professional Liability Insurance for the protection against claims arising out of the performance of services under this Agreement caused by errors, omissions or other acts for which Consultant is liable. Said insurance shall be written with limits of not less than one million dollars (\$1,000,000).

9.5 Consultant shall not commence work under this Agreement until it has obtained all the insurance required hereinabove and submitted to County certificates of insurance naming the County of Lake as additional insured. Consultant agrees to provide to County, at least 30 days prior to expiration date, a new certificate of insurance.

9.6 In case of any subcontract, Consultant shall require each subcontractor to provide all of the same coverage as detailed hereinabove. Subcontractors shall provide certificates of insurance naming the County of Lake as additional insured and shall submit new certificates of insurance at least 30 days prior to expiration date. Consultant shall not allow any subcontractor to commence work until the required insurances have been obtained.

9.7 For any claims related to the work performed under this Agreement, the Consultant's insurance coverage shall be primary insurance as to the County, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by County, its officers, officials, employees, agents or volunteers shall be in excess of the Consultant's insurance and shall not contribute with it.

9.8 The Commercial General Liability and Automobile Liability Insurance must each contain, or be endorsed to contain, the following provision:

The County, its officers, officials, employees, agents, and volunteers are to be covered as additional insureds and shall be added in the form of an endorsement to Consultant's insurance on Form CG 20 10 11 85. Consultant shall not commence work under this Agreement until Consultant has had delivered to County the Additional Insured Endorsements required herein.

Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under subdivision (b) of California Civil Code Section 2782.

9.9 Insurance coverage required of Consultant under this Agreement shall be placed with insurers with a current A.M. Best rating of no less than A: VII.

Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve the Consultant for liability in excess of such coverage, nor shall it preclude County from taking other action as is available to it under any other provision of this Agreement or applicable law.

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Failure of County to enforce in a timely manner any of the provisions of this section shall not act as a waiver to enforcement of any of these provisions at a later date.

9. Any failure of Consultant to maintain the insurance required by this section, or to comply with any of the requirements of this section, shall constitute a material breach of the entire Agreement.

10. **ATTORNEY'S FEES AND COSTS.** If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs, and necessary disbursements in addition to any other relief to which such part may be entitled.

11. **ASSIGNMENT.** Consultant shall not assign any interest in this Agreement and shall not transfer any interest in the same without the prior written consent of County except that claims for money due or to become due Consultant from County under this Agreement may be assigned by Consultant to a bank, trust company, or other financial institution without such approval. Written notice of any such transfer shall be furnished promptly to County. Any attempt at assignment of rights under this Agreement except for those specifically consented to by both parties or as stated above shall be void.

12. **PAYROLL TAXES AND DEDUCTIONS.** Consultant shall promptly forward payroll taxes, insurances, and contributions to designated governmental agencies.

13. **INDEPENDENT CONSULTANT.** It is specifically understood and agreed that, in the making and performance of this Agreement, Consultant is an independent Consultant and is not an employee, agent or servant of County. Consultant is not entitled to any employee benefits. County agrees that Consultant shall have the right to control the manner and means of accomplishing the result Agreed for herein.

Consultant is solely responsible for the payment of all federal, state and local taxes, charges, fees, or contributions required with respect to Consultant and Consultant's officers, employees, and agents who are engaged in the performance of this Agreement (including without limitation, unemployment insurance, social security and payroll tax withholding.)

14. **OWNERSHIP OF DOCUMENTS.** All non-proprietary reports, drawings, renderings, or other documents or materials prepared by Consultant hereunder are the property of County.

15. **SEVERABILITY.** If any provision of this Agreement is held to be unenforceable, the remainder of this Agreement shall be severable and not affected thereby.

16. **ADHERENCE TO APPLICABLE DISABILITY LAW.** Consultant shall be responsible for knowing and adhering to the requirements of Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, (42 U.S.C. Sections 12101, et seq.). California Government Code Sections 12920 et seq., and all related state and local laws.



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- 17. HIPAA COMPLIANCE.** Consultant will adhere to Titles 9 and 22 and all other applicable Federal and State statutes and regulations, including the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and will make his best efforts to preserve data integrity and the confidentiality of protected health information.
- 18. SAFETY RESPONSIBILITIES.** Consultant will adhere to all applicable CalOSHA requirements in performing work pursuant to this Agreement. Consultant agrees that in the performance of work under this Agreement, Consultant will provide for the safety needs of its employees and will be responsible for maintaining the standards necessary to minimize health and safety hazards.
- 19. JURISDICTION AND VENUE.** This Agreement shall be construed in accordance with the laws of the State of California and the parties hereto agree that venue of any action or proceeding regarding this Agreement or performance thereof shall be in Lake County, California. Consultant waives any right of removal it might have under California Code of Civil Procedure Section 394.
- 20. RESIDENCY.** All independent Consultant s providing services to County for compensation must file a State of California Form 590, certifying California residency or, in the case of a corporation, certifying that they have a permanent place of business in California.
- 21. NO THIRD-PARTY BENEFICIARIES.** Nothing contained in this Agreement shall be construed to create, and the parties do not intend to create any rights in or for the benefit of third parties.