

**AGENDA
ITEM**

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AGENDA STAFF REPORT

DATE: March 6, 2019

TO: Mayor and City Council

APPROVED BY: David Dale, City Manager *DD*

PREPARED BY: Lilliana Falomir, Public Works Manager *L. Falomir*

SUBJECT: Authorize the City Manager to Sign Agreement of Professional Services with Lee & Ro, Inc. for Engineering Services for Wastewater Treatment Plant Upgrading and Expansion Project.

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Recommendation:

Authorize the City Manager to Sign Agreement of Professional Services with Lee & Ro, Inc. for engineering services for Wastewater Treatment Plant Upgrading and Expansion Project.

Background:

The City of Calexico, California owns and operates a Wastewater Treatment Plant (WWTP) located at 298 West 2nd Street, Calexico, CA 92231. The total permitted WWTP treatment capacity is 4.3 million gallons per day (mgd) and the current average flow is approximately 2.7 mgd. The WWTP generates approximately 290 metric tons of Class B Biosolids per year.

The WWTP consists of two separate treatment trains, (1) Conventional Activated Sludge (Train 1), and (2) Aerated Lagoons (Train 2). Train 1 has a total permitted capacity of 2.5 mgd and Train 2 has a total permitted capacity of 1.8 mgd. Both Trains share a common headworks and the effluent from both Trains undergoes ultra-violet (UV) disinfection before being discharged into the New River. Solids are anaerobically digested and dried in sludge drying beds. The existing WWTP has been in service for over 50 years. Although the City has partially upgraded certain plant facilities (upgrades to Train 1 were performed in 1974, 1991, and 1995; upgrades to Train 2 were performed in 1994), most of the WWTP components are at the end of their useful service life.

The WWTP is subject to the waste discharge requirements set forth by the California Regional Water Quality Control Board (RWQCB), Colorado River Basin Region (Region 7) Order R7-2014-0004 and National Pollutant

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Discharge Elimination System (NPDES) Permit No. CA7000009 for discharge of the effluent into the New River. The current NPDES permit (adopted May 8, 2014) is set to expire May 31, 2019 and the City has applied for permit renewal.

In August 2018, Lee and Ro, Inc. finalized the WWTP Master Plan which included the evaluation of treatment process alternatives and recommendation for the most cost-effective WWTP upgrades. The viable treatment process alternative evaluated were the conventional activated sludge which we currently use, oxidation ditch, and single-cell activated sludge (Biolac). Based on the preliminary design criteria and existing facility evaluation, listed below you will find the cost estimate breakdown for the three (3) alternatives.

Alternative	Estimated Construction Cost
Activated Sludge System	\$36,510,000.00
Oxidation Ditch System	\$29,430,000.00
Biolac System	\$26,336,000.00

After reviewing the three (3) alternatives, the most cost-effective upgrade for the WWTP is the conversion to the single-cell activated sludge.

On December 5, 2018, the City of Calexico Public Works Department solicited proposals from qualified engineering firms to provide engineering services for Wastewater Treatment Plant Upgrading and Expansion Project. The project will consist of replacing outdated equipment and facilities, upgrade treatment processes, and increase WWTP capacity, the City has selected the single-cell activated sludge (e.g. Biolac) for this project.

Discussion & Analysis:

On January 24, 2019, the Office of the City Clerk received three (3) proposals. The proposals were reviewed by an evaluation committee composed of Public Works Manager, City of El Centro and City of Holtville representatives. The consultants were evaluated on the basis of scope of work, experience, references and project schedule.

Firm	Cost Proposal
Carollo	\$2,100,469.00
Lee & Ro, Inc.	\$1,992,373.00
PACE	\$2,286,691.00

The firm that ranked the highest of the evaluation committee and provided the lowest proposals is Lee & Ro, Inc. In addition, Lee & Ro, Inc. demonstrated in their RFP knowledge and understanding of the engineering design, scope of work and state requirements for Wastewater Treatment Plant. As part of Lee & Ro, Inc. proposals, they have included a Solar Feasibility Study for the WWTP not to exceed \$49,996.00. Their reference and experience provided numerous project examples of designing Wastewater Treatment Plant similar to ours. In fact, Lee & Ro, Inc. designed the following Wastewater Treatment Plants in Imperial County:

City	Year	Design Flow	Contract Amount
Brawley	2007	5.9	\$1,946,810.00
Holtville	2013	0.85	\$961,436

Please note that Lee & Ro, Inc. cost proposal is 7.6% of the estimated construction cost (\$26,336,000.00). For these reasons, City staff is recommended that the City Council of the City of Calexico authorize the City Manager to sign agreement of Professional Services with Lee & Ro, Inc.

Fiscal Impact:

Capital Improvement Program - Wastewater Enterprise Funds \$1,992,373.00

Coordinated With:

Public Works Department.

Attachment(s):

1. Agreement of Professional Services between City of Calexico and Lee & Ro, Inc.
2. Request for Proposals for Engineering Services for Wastewater Treatment Plant Upgrading and Expansion Project.

<p>AGENDA ITEM</p> <hr style="width: 10%; margin: 0 auto;"/>

AGREEMENT FOR PROFESSIONAL SERVICES

This Agreement is made and entered into as of the 6th day of March, 2019, by and between the City of Calxico ("City") and Lee & Ro, Inc. ("Consultant").

RECITALS

- A. Consultant is specially trained, experienced and competent to perform the special services which will be required by this Agreement; and
- B. Consultant possesses the skill, experience, ability, background, certification and knowledge to provide the services described in this Agreement on the terms and conditions described herein.

AGREEMENT

1. **Scope of Services.** The Consultant shall furnish the following services in a professional manner. Consultant shall perform the services described on Exhibit A which is attached hereto and incorporated herein by reference. Consultant shall provide said services at the time, place, and in the manner specified in Exhibit A, subject to the direction of the City through its staff that it may provide from time to time.
2. **Time of Performance.** The services of Consultant are to commence upon execution of this Agreement and shall continue until all authorized work is approved by the City. All such work shall be completed no later than December 31, 2021. Time is of the essence for every provision of this agreement that states a time for performance and for every deadline imposed by the City.
3. **Compensation.** Compensation to be paid to Consultant shall be as set forth in Exhibit B, which is attached hereto and incorporated herein by reference. Payment by City under this Agreement shall not be deemed a waiver of defects, even if such defects were known to the City at the time of payment.
4. **Method of Payment.** Consultant shall submit monthly billings to City describing the work performed during the preceding month. Consultant's bills shall include a brief description of the services performed, the date the services were performed, the number of hours spent and by whom, and a description of any reimbursable expenditures. City shall pay Consultant no later than 30 days after approval of the monthly invoice by City staff.
5. **Ownership of Documents.** All plans, studies, documents and other writings prepared by and for Consultant, its officers, employees and agents and subcontractors in the course of implementing this Agreement, except working notes and internal documents, shall become the property of the City upon payment to Consultant for such work, and the City shall have the sole right to use such materials in its discretion without further

compensation to Consultant or to any other party. Consultant shall, at Consultant's expense, provide such reports, plans, studies, documents and other writings to City upon written request.

6. Independent Contractor. It is understood that Consultant, in the performance of the work and services agreed to be performed, shall act as and be an independent contractor and shall not act as an agent or employee of the City. Consultant shall obtain no rights to retirement benefits or other benefits which accrue to City's employees, and Consultant hereby expressly waives any claim it may have to any such rights.
7. Interest of Consultant. Consultant (including principals, associates and professional employees) covenants and represents that it does not now have any investment or interest in real property and shall not acquire any interest, direct or indirect, in the area covered by and during this Agreement or any other source of income, interest in real property or investment which would be affected in any manner or degree by the performance of Consultant's services hereunder. Consultant further covenants and represents that in the performance of its duties hereunder no person having any such interest shall perform any services under this Agreement.

Consultant is not a designated employee within the meaning of the Political Reform Act because Consultant:

- a. will conduct research and arrive at conclusions with respect to his/her rendition of information, advice, recommendation or counsel independent of the control and direction of the City or of any City official, other than normal agreement monitoring; and
 - b. possesses no authority with respect to any City decision beyond rendition of information, advice, recommendation or counsel. (FPPC Reg. 18700(a)(2).)
8. Professional Ability of Consultant. City has relied upon the professional training and ability of Consultant to perform the services hereunder as a material inducement to enter into this Agreement. Consultant shall therefore provide properly skilled professional and technical personnel to perform all services under this Agreement. All work performed by Consultant under this Agreement shall be in accordance with applicable legal requirements and shall meet the standard of quality ordinarily to be expected of competent professionals in Consultant's field of expertise.
 9. Indemnity. Consultant agrees to indemnify, including the cost to defend, the City, and its officers, agents and employees from any and all claims, demands, costs or liability that arise out of, or pertain to, or relate to the negligence, recklessness, or willful misconduct of Consultant and its agents in the performance of services under this contract. This indemnity does not apply to liability for damages for death or bodily injury to persons, injury to property, or other loss, damage or expense arising from the sole negligence, willful misconduct or defects in design by the City or its agents, servants, or independent contractors who are directly responsible to the City, or the active negligence of the City.

To the fullest extent permitted by law, the Consultant shall (1) immediately defend and (2) indemnify the City, and its councilmembers, officers, agents, and employees from and against all liabilities regardless of nature or type that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, or its employees, agents, or subcontractors. Liabilities subject to the duties to defend and indemnify include, without limitation, all claims, losses, damages, penalties, fines, and judgments; associated investigation and administrative expenses; defense costs, including but not limited to reasonable attorneys' fees; court costs; and costs of alternative dispute resolution. The Consultant's obligation to indemnify applies unless it is finally adjudicated that the liability was caused by the sole active negligence or sole willful misconduct of an indemnified party. If it is finally adjudicated that liability is caused by the comparative active negligence or willful misconduct of an indemnified party, then Consultant's indemnification obligation shall be reduced in proportion to the established comparative liability.

- (b) The duty to defend is a separate and distinct obligation from Consultant's duty to indemnify. Consultant shall be obligated to defend, in all legal, equitable, administrative, or special proceedings, with counsel approved by the City, the City and its councilmembers, officers, agents, and employees, immediately upon tender to Consultant of the claim in any form or at any stage of an action or proceeding, whether or not liability is established. An allegation or determination that persons other than Consultant are responsible for the claim does not relieve Consultant from its separate and distinct obligation to defend under this section. The obligation to defend extends through final judgment, including exhaustion of any appeals. The defense obligation includes an obligation to provide independent defense counsel if Consultant asserts that liability is caused in whole or in part by the negligence or willful misconduct of the indemnified party. If it is finally adjudicated that liability was caused by the comparative active negligence or willful misconduct of an indemnified party, Consultant may submit a claim to the City for reimbursement of reasonable attorneys' fees and defense costs in proportion to the established comparative liability of the indemnified party.
- (c) The review, acceptance or approval of the City's work or work product by any indemnified party shall not affect, relieve or reduce the City's indemnification or defense obligations. This Section survives completion of the services or the termination of this contract. The provisions of this Section are not limited by and do not affect the provisions of this contract relating to insurance.

10. Insurance Requirements.

- a. Consultant, at Consultant's own cost and expense, shall procure and maintain, for the duration of the contract, the following insurance policies.
 - i. Workers' Compensation Coverage. Consultant shall maintain Workers' Compensation Insurance and Employer's Liability Insurance for his/her employees in accordance with the laws of the State of California. In addition,

Consultant shall require each subcontractor to similarly maintain Workers' Compensation Insurance and Employer's Liability Insurance in accordance with the laws of the State of California for all of the subcontractor's employees. Any notice of cancellation or non-renewal of all Workers' Compensation policies must be received by the City at least thirty (30) days prior to such change. The insurer shall agree to waive all rights of subrogation against City, its officers, agents, employees and volunteers for losses arising from work performed by Consultant for City. This provision shall not apply if Consultant has no employees performing work under this Agreement. If the Consultant has no employees for the purposes of this Agreement, Consultant shall sign the "Certificate of Exemption from Workers' Compensation Insurance" which is attached hereto as Exhibit C.

- i. General Liability Coverage. Consultant shall maintain commercial general liability insurance in an amount not less than one million dollars (\$1,000,000) per occurrence for bodily injury, personal injury and property damage. If a commercial general liability insurance form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Agreement or the general aggregate limit shall be at least twice the required occurrence limit.
- iii. Automobile Liability Coverage. Consultant shall maintain automobile liability insurance covering bodily injury and property damage for all activities of the Consultant arising out of or in connection with the work to be performed under this Agreement, including coverage for owned, hired and non-owned vehicles, in an amount of not less than one million dollars (\$1,000,000) combined single limit for each occurrence.
- iv. Errors and Omissions Liability. Consultant shall maintain errors and omissions liability insurance for all work performed under this Agreement in an amount of not less than one million dollars (\$1,000,000).
- b. Policy Endorsements. Each general liability and automobile liability insurance policy shall be with insurers possessing a Best's rating of no less than A:VII and shall be endorsed with the following specific language:
 - i. The City of Calexico, its elected or appointed officers, officials, employees, agents and volunteers are to be covered as additional insureds with respect to liability arising out of work performed by or on behalf of the Consultant, including materials, parts or equipment furnished in connection with such work or operations.
 - ii. This policy shall be considered primary insurance as respects the City, its elected or appointed officers, officials, employees, agents and volunteers. Any insurance maintained by the City, including any self-insured retention

the City may have, shall be considered excess insurance only and shall not contribute with it.

- iii. This insurance shall act for each insured and additional insured as though a separate policy had been written for each, except with respect to the limits of liability of the insuring company.
 - iv. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its elected or appointed officers, officials, employees, agents or volunteers.
 - v. The insurance provided by this policy shall not be suspended, voided, canceled, or reduced in coverage or in limits except after thirty (30) days written notice has been received by the City.
- c. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the City's option, Consultant shall demonstrate financial capability for payment of such deductibles or self-insured retentions.
 - d. Certificates of Insurance and Endorsements. Consultant shall provide certificates of insurance with original endorsements to City as evidence of the insurance coverage required herein. Certificates of such insurance shall be filed with the City on or before commencement of performance of this Agreement. Current certification of insurance shall be kept on file with the City at all times during the term of this Agreement.
11. Compliance with Laws. Consultant shall use the standard of care in its profession to comply with all applicable federal, state and local laws, codes, ordinances and regulations.
 12. Licenses. Consultant represents and warrants to City that it has all licenses, permits, qualifications, insurance and approvals of whatsoever nature which are legally required of Consultant to practice its profession. Consultant represents and warrants to City that Consultant shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement, any licenses, permits, insurance and approvals which are legally required of Consultant to practice its profession. Consultant shall obtain a City of Calexico Business License.
 13. Controlling Law Venue. This Agreement and all matters relating to it shall be governed by the laws of the State of California and any action brought relating to this Agreement shall be held exclusively in a state court in the County of Imperial, California.
 14. Written Notification. Any notice, demand, request, consent, approval or communication that either party desires or is required to give to the other party shall be in writing and either served personally or sent prepaid, first class mail. Any such notice, demand, etc.

shall be addressed to the other party at the address set forth herein below. Either party may change its address by notifying the other party of the change of address. Notice shall be deemed communicated within 48 hours from the time of mailing if mailed as provided in this section.

If to City: City of Calexico, City Manager
608 Heber Ave.
Calexico, CA 92231

If to Consultant: Lee & Ro, Inc.
1199 South Fullerton Road
City of Industry, CA 91748

15. Consultant's Books and Records.

- a. Consultant shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements charged to City for a minimum period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant to this Agreement.
- b. Consultant shall maintain all documents and records which demonstrate performance under this Agreement for a minimum period of three (3) years, or for any longer period required by law, from the date of termination or completion of this Agreement.
- c. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit, at any time during regular business hours, upon written request by the City Manager, City Attorney, City Auditor or a designated representative of these officers. Copies of such documents shall be provided to the City for inspection at City Hall when it is practical to do so. Otherwise, unless an alternative is mutually agreed upon, the records shall be available at Consultant's address indicated for receipt of notices in this Agreement.
- d. Where City has reason to believe that such records or documents may be lost or discarded due to dissolution, disbandment or termination of Consultant's business, City may, by written request by any of the above named officers, require that custody of the records be given to the City and that the records and documents be maintained in City Hall. Access to such records and documents shall be granted to any party authorized by Consultant, Consultant's representatives, or Consultant's successor-in-interest.

16. Entire Agreement. This Agreement constitutes the complete and exclusive statement of Agreement between the City and Consultant. All prior written and oral communications,

including correspondence, drafts, memoranda, and representations, are superseded in total by this Agreement.

17. Amendments. This Agreement may be modified or amended only by a written document executed by both Consultant and City and approved as to form by the City Attorney.
18. Waiver. No failure on the part of either party to exercise any right or remedy hereunder shall operate as a waiver of any other right or remedy that party may have hereunder.
19. Execution. This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by both parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.
20. Assignment and Subcontracting. The parties recognize that a substantial inducement to City for entering into this Agreement is the professional reputation, experience and competence of Consultant. Assignments of any or all rights, duties or obligations of the Consultant under this Agreement will be permitted only with the express consent of the City. Consultant shall not subcontract any portion of the work to be performed under this Agreement without the written authorization of the City. If City consents to such subcontract, Consultant shall be fully responsible to City for all acts or omissions of the subcontractor. Nothing in this Agreement shall create any contractual relationship between City and subcontractor nor shall it create any obligation on the part of the City to pay or to see to the payment of any monies due to any such subcontractor other than as otherwise is required by law.
21. Termination. This Agreement may be terminated by the City immediately for cause or by either party without cause upon fifteen days' written notice of termination. Upon termination, Consultant shall be entitled to compensation for services performed up to the effective date of termination.

SIGNATURES ON FOLLOWING PAGE

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the date first written above.

CITY OF CALEXICO:

CONSULTANT:

David Dale
City Manager

APPROVED AS TO FORM:

ATTEST:

Carlos Campos
City Attorney

Gabriela Garcia
Deputy City Clerk

EXHIBIT A

SCOPE OF SERVICES

(proposal dated January 24, 2019)



PROPOSAL TO
CITY OF CALEXICO
PUBLIC WORKS DEPARTMENT



ENGINEERING SERVICES FOR
WASTEWATER
TREATMENT PLANT
UPGRADING AND
EXPANSION PROJECT

JANUARY 24, 2019



SUBMITTED BY

LEE & RO, Inc.



1199 South Fullerton Road, City of Industry, CA 91748
Tel: (626) 912-3391
Fax: (626) 912-2015
www.LEE-RO.com

January 24, 2019

Office of the City Clerk
City Hall, City of Calexico
608 Heber Avenue
Calexico, CA 92231

Subject: Proposal for Professional Engineering Services for Wastewater Treatment Plant (WWTP) Upgrading and Expansion Project

Ladies and Gentlemen:

In 2018, LEE & RO prepared the WWTP Master Plan. Through the master planning effort, we have acquired detailed knowledge of the existing process trains and current conditions of structures and equipment. LEE & RO is equipped with a great deal of knowledge to take on the work for the detail design for the facilities recommended in the Master Plan.

LEE & RO clearly understands the City's project goal – Produce the "Most Cost-Effective WWTP Design." In this regard, LEE & RO will employ "Value Engineering" throughout the design stages to identify and take advantage of cost reduction opportunities.

Since 1990, LEE & RO has successfully delivered numerous wastewater treatment plant engineering projects for many public entities in the Imperial and Riverside Counties under the jurisdiction of the Colorado River Basin (Region 7) Regional Water Quality Control Board. Additionally, LEE & RO has successfully delivered five (5) *Biolac*® based wastewater treatment plants for five entities – City Brawley, City of Holtville, Coachella Valley Water District, City of Blythe, and City of Beaumont. We believe LEE & RO is the best qualified to undertake this project.

LEE & RO proposes Jay Jung, PE, as the Project Manager for the subject project. Jay has extensive experience with process analysis, engineering, and design of the wastewater treatment facilities. All team members have recent engineering experience with *Biolac*®-based treatment plants. M. Steve Ro, PE, the firm's founding partner, will work closely with the project team as the Principal-in-Charge and will provide technical as well as project management support.

We have included the signed Acceptances of Addendum No. 1 in Appendix B. LEE & RO sincerely appreciates the opportunity to be of service to the City of Calexico. LEE & RO will make sure that we commit essential resources to provide responsive services and produce high-quality design documents on time.

Sincerely,

LEE & RO, Inc.

Jay Jung, PE
Project Manager

M. Steve Ro, PE
Principal-in-Charge

Encl: Five Bound Copies & USB of Proposal and One Copy of Fee Proposal Sealed in a Separate Envelope

Section 1 FIRM OVERVIEW

CORPORATE OFFICE

1199 S. Fullerton Road
City of Industry, CA 91748

40 Years in Business

SPECIALTIES

Engineering / Construction Management

**WASTEWATER
TREATMENT &
WATER RECYCLING
PLANTS**

**WATER TREATMENT
PLANTS**

PUMP STATIONS

PIPELINES

**WATER STORAGE
TANKS**

About LEE & RO

LEE & RO, Inc., a California Corporation established in 1979, is a medium-sized, full service, multi-discipline, water infrastructure engineering firm that specializes in planning, design, and construction management of municipal water & wastewater infrastructure projects including treatment plant rehabilitation and upgrades.

LEE & RO is headquartered in the City of Industry, Los Angeles County. In addition, LEE & RO has branch offices in San Diego, Sacramento, and Walnut Creek. The LEE & RO in-house engineering disciplines include civil and utilities, process engineering, structural, mechanical, electrical, instrumentation & controls (I&C), construction management & inspection, start-up & commissioning, and cost estimating.

LEE & RO enjoys the efficiency of a "small local firm," but possesses the expertise of a "large national firm." The firm's compact management structure enables us to be efficient and responsive to clients' needs. LEE & RO can rapidly allocate resources to meet peak production requirements and tight project schedules. Our clients will also benefit by having "Direct Access" to the firm's top management.

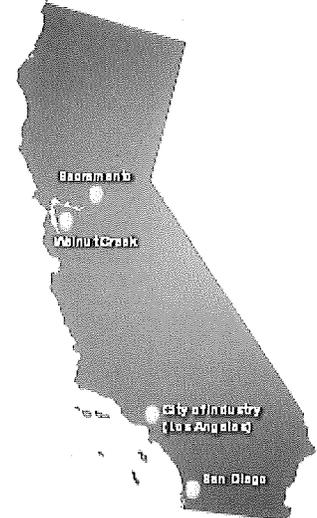
Please note that LEE & RO has successfully provided multi-discipline engineering services many public agencies and municipalities in the Imperial County and Low Desert Region, including the City of Calexico, Brawley, Holtville, El Centro, Calipatria and Westmorland; and in the Coachella Valley such as City of Coachella, City of Indio, Valley Sanitary District and Coachella Valley Water District.

Why LEE & Ro is Best Qualified?

- (1) LEE & RO has successfully delivered five (5) wastewater treatment plant upgrading projects employing Biolac®-based Activated Sludge System located in the Imperial and Riverside Counties.
- (2) LEE & RO is proposing the "Local Project Team" responsible for completion of the City of Brawley and City of Holtville WWTP Upgrading Projects. Both projects employ "Biolac® Activated Sludge System."
- (3) LEE & RO ready to apply lessons learned from past Biolac® activated sludge projects to the City of Calexico WWTP Upgrading Project. LEE & RO will focus on ways to reduce the construction costs without sacrificing the quality of the completed project.
- (4) LEE & RO will commit the necessary resources to meet the project schedule. In addition, M. Steve Ro, PE, firm's founding principal will lead and guide the project team headed by Jay Jung, PE, Project Manager.

"Our commitment to quality services has served us well:

- (1) Over 90% of our business is generated from repeat clients and***
- (2) No lawsuits or claims related to our performance since the firm's inception in 1979."***



Section 2 PROJECT UNDERSTANDING & APPROACH

The following provides a brief overview of the project and our understanding of the scope of services. In addition, the LEE & RO's technical approach and methodology to performing the engineering services are addressed herein.

PROJECT UNDERSTANDING



The City of Calexico (City) owns and operates the wastewater treatment plant (WWTP) under NPDES Permit No. CA7000009 (Order No. R7-2014-0004) issued by the California Regional Water Quality Control Board (RWQCB), Colorado River Basin Region (Region 7). The permitted plant capacity is 4.3 MGD. The WWTP consists of two treatment plants - Conventional Activated Sludge (Plant No. 1) and Aerated Lagoons (Plant No. 2). The plant process units include mechanical bar racks, influent pump stations, aerated grit removal, two circular primary clarifiers, three activated sludge basins, four aerated lagoons, three circular secondary clarifiers, a UV disinfection system, a dissolved air floatation (DAF) thickener, two anaerobic sludge digesters, and sludge drying beds. The WWTP also includes an Operations Building.

Based on the design criteria included in the 1994 WWTP Upgrade, the liquid treatment capacities are 2.5 MGD for Plant 1 and 1.8 MGD for Plant 2. Plant No. 1 and 2 share common headworks. The Aerated Lagoons (Plant 2) effluent is combined with Plant No. 1's effluent and then discharged to the New River after UV disinfection. The sludge from Plant 2 is processed at the sludge drying beds without mechanical thickening or anaerobic digestion. The secondary clarifiers, DAF sludge thickener and anaerobic digesters are the unit processes supporting Plant 1. The primary sludge and the Plant 1 thickened secondary sludge are stabilized at the digesters and then dewatered at the sludge drying beds.

In 2018, LEE & RO prepared a WWTP Master Plan summarizing the condition of the existing WWTP and recommending the upgraded WWTP facilities to meet anticipated waste loads. During the master planning process, LEE & RO obtained significant inputs from City staff, e.g., maximize reuse of existing facilities. The upgraded WWTP as described in the Master Plan and RFP should be able to treat the projected average dry weather flow of 5.8 MGD and peak wet weather flow of 11.6 MGD. Additionally, the upgraded WWTP employing single-basin activated sludge (Biolac®) should be capable of producing an effluent with low ammonia concentration (i.e. less than 5 mg/L) in compliance with future potential regulatory requirements.

The City desires to reuse existing facilities and structures, if possible. LEE & RO thoroughly evaluated the existing WWTP and recommended reuse of the existing Headworks structure except replacing the mechanical bar screens. This will result in significant construction cost savings (i.e. approximately \$ 1.5 million). Also, LEE & RO recommended using the existing drying beds which have adequate capacity to process the biosolids generated from the upgraded WWTP. This will result in a cost savings of approximately \$2 million.

PROJECT SCOPE

As recommended by the WWTP Master Plan and described in the RFP, the project scope will include the new construction and improvement of the following major process components:

- ◆ New Packaged Septage Receiving Station
- ◆ Improvements to Existing Headworks, including Odor Control System, New Mechanical Bar Screens, and Screenings Disposal Systems
- ◆ New Influent Metering Structure
- ◆ New Vortex Grit Removal System
- ◆ New Influent Pump Station
- ◆ Three New Biolac® Aeration Basins and Appurtenances
- ◆ New Aeration Blowers and Blower Building
- ◆ Two New Secondary Clarifiers

**PROJECT SCOPE
(CONTINUED)**

- ◆ New RAS, WAS and Scum Pump Stations
- ◆ Replace Existing Calgon UV System with Trojan UV 4000 System
- ◆ New Rotary Drum Sludge Thickener Facility
- ◆ Conversion of an Existing Primary Clarifier to Plant Water Storage and Distribution System
- ◆ New Water Distribution Systems and Hydrants
- ◆ New Plant Stormwater Drainage System
- ◆ New Electrical Buildings and Electrical Power Distribution Systems
- ◆ New PLC/SCADA Systems
- ◆ New Piping for Conveyance of Wastewater, Mixed Liquor, Secondary Effluent, Sludges and Utility Water
- ◆ Site Improvements including Paved Road for Access to Main Process Units

PROJECT APPROACH

LEE & RO fully understands the project goals and is now ready for production of construction documents. LEE & RO offers a highly qualified team with recent experience with Biolac® treatment plants. LEE & RO is now ready to work together with the City of Calexico to successfully complete the project. LEE & RO's project approach will focus on:

- ◆ Production of High-Quality Construction Documents
- ◆ Employing Value Engineering throughout the Design process to Produce Project Cost
- ◆ Close Coordination with City O&M Staff to Produce O&M Friendly Treatment Facility

Project Communication

LEE & RO will maintain close communication with the City. The City will have continuous access to the LEE & RO project manager as the single point of contact. LEE & RO will submit monthly progress reports to document and report project progress and any issues need to be resolved. LEE & RO plans to elevate the issues as soon as possible before they impact the project cost and schedule.

Project Documentation

LEE & RO will utilize Project Decision Logs (PDL) to document the project understanding and decisions made by the City or other stakeholders. All project stakeholders will be invited to participate in the decision-making process and the PDL will be utilized as primary documentation for tracking decisions made.

Adhere to Codes & Standards

LEE & RO will pay attention to various codes and standards during the preparation of design documents. We believe that consistent application of codes & standards expedites the design and construction process.

Constructability Reviews

Constructability review is an essential part of any engineering design project. LEE & RO will perform constructability/biddability review at approximately 60% & 90% design completion. Constructability review is an interactive design process for determining value added services, material quality, process functionality, and O&M requirements and, as a result, quality constructability review reduces the project risks as well as project costs.

Cost Management & Control

Proactive project budget management is extremely important. During design, LEE & RO will continuously monitor the project construction cost to ensure the project can be delivered within the City's construction budget. All cost estimates are developed using Excel spreadsheets, facilitating regular updates. Any unusual change in the estimated project construction cost will be quickly brought to the City's attention.



**PROJECT
APPROACH**

Quality Assurance/Quality Control (QA/QC)

Using our experience gained from similar projects, we continually enhance our QA/QC procedures. LEE & RO has developed and utilizes **QA/QC Checklists**, which list approximately 700 items which need to be checked in water infrastructure facility engineering and design disciplines. The LEE & RO QA/QC team must develop detailed project-specific QA/QC checklists to correct deficiencies in the design deliverables. Quality control reviews will occur upon completion of specific tasks and work products prior to submittal for client review. Key elements of our QA/QC approach include:

- a. Interactive stakeholder communication to agree on schedule and key technical drivers
- b. Ensure that all calculations, drawings, specifications, construction cost estimates are thoroughly checked.
- c. Constructability reviews at 60% & 90% design completion.
- d. Continually value-engineer to identify cost saving opportunities without compromising quality

LEE & RO's standard QA/QC checklist for the design deliverables (plans, specifications and construction cost estimates) covers.

- ✓ Comply with NFPA, NEC, and building and fire codes.
- ✓ Show existing site and as-built conditions as accurately as possible.
- ✓ Clearly delineate the contractor's work and responsibilities on the drawings and specifications.
- ✓ Show adequate design details, especially for equipment that must fit into confined spaces.
- ✓ Eliminate conflicts between specifications and plans, and among disciplines.
- ✓ Develop construction sequencing and startup commissioning plan early during design.
- ✓ Produce dependable construction cost estimates.

Relevant Experience with Biolac® Treatment Plants

LEE & RO has successfully completed five (5) wastewater treatment plant upgrades and expansion projects (**Exhibit 2-1**) employing the Biolac® process. LEE & RO's responsibilities included facility condition assessment, process and life cycle cost analysis, engineering & design, and construction management/inspection services. We have learned valuable lessons and we are ready to apply the lessons to this City of Calexico WWTP upgrading project. In **Exhibit 2-1** below, we have listed the salient design criteria in comparison with the proposed Calexico WWTP.

Exhibit 2-1: LEE & RO's Biolac® Projects

	<i>Beaumont WRP</i>	<i>Blythe WWTP</i>	<i>Coachella Valley Water District WRP4</i>	<i>Brawley WWTP</i>	<i>Holtville WWTP</i>	<i>City of Calexico WWTP Proposed</i>
<i>Construction Completed</i>	1996	1997	2009	2012	2017	2021 (Est)
<i>Capacity, MGD</i>	1.5	2.5	3	5.9	0.85	5.8
<i>Influent BOD, MG/L</i>	300	220	350	175	300	350
<i>Number of Biolac® Basin</i>	2	2	2	3	1	3
<i>Active Volume, Each, MG</i>	2	1.5	2.75	2.9	1.58	3.5
<i>Detention Time, Hours</i>	64	30	44	36	34	43
<i>Total Air Required, CFM</i>	2,500	5,400	7,540	6,600	1,876	14,280
<i>Number of Secondary Clarifier</i>	2	2	2	3	1	3
<i>Secondary Clarifier Diameter, ft</i>	50	60	80	80	40x33	75
<i>Effluent Polishing</i>	UV Disinfection	None	Chlorination/ Dechlorination	UV Disinfection	UV Disinfection	UV Disinfection
<i>Effluent Discharged To</i>	San Timoteo Creek	Land Disposal	Coachella Storm Channel	New River	Alamo River	New River
<i>Anticipated Effluent Quality, MG/L</i>	BOD < 15 TSS < 15	BOD < 15 TSS < 15	BOD < 15 TSS < 15	BOD < 15 TSS < 15 Ammonia < 2	BOD < 10 TSS < 10 Ammonia < 2	BOD < 10 TSS < 15 Ammonia < 1



TECHNICAL
APPROACH

In this section, we discuss our technical approach to upgrading and expanding the WWTP unit processes. The proposed preliminary site layout is included as **Exhibit 2-2**.

Septage Receiving Station

It is our understanding that Michael Baker is designing the New River Pump Back Station Project, which will take place near the WWTP. The new Septage Receiving Station will be sited adjacent to the new Pump Back Station but will be separated by a fence to allow independent access to the septage trucks. The septage hauling trucks should neither disrupt normal access to the WWTP nor create a nuisance.

Headworks

LEE & RO evaluated the condition of the existing headworks structure and found it to be in reasonable condition despite its age. However, mechanical equipment needs to be replaced. The existing influent channels are hydraulically capable of handling the future influent flows. The existing Bar Screen No. 1 and No. 2 will be replaced with new self-cleaning screens capable of handling the peak flow of 11.6 MGD. The new Bar Screen No. 2 will serve as a standby. A new screenings washer and compactor will be installed.

Grit Removal and Influent Pump Station

An efficient grit removal system, such as vortex grit removal units, will reduce the grit accumulation in the new Biolac® aeration basins and secondary clarifiers. The new vortex grit chambers will be located at an elevation that allows for gravity flow to the new influent pump station which will reduce pumping costs. The design will ensure that the full flow is processed by the vortex grit chambers.

Currently, the WWTP utilizes two influent pump stations to lift the screened influent to the primary clarifiers and aeration lagoons. Influent Pump Station No. 1 pumps screened wastewater from the grit chamber to the primary influent distribution box. Influent Pump Station No. 2 bypasses the grit chamber and directs screened wastewater directly to the primary influent distribution box. Individually, the influent pump stations are incapable of handling the full flows. A new single influent pump station with an adequate capacity (e.g. 11.6 MGD+) will be constructed to lift the screened wastewater to the new influent distribution box for the Biolac® basins. The City O&M staff has indicated a preference for Gorman-Rupp pumps, which LEE & RO will incorporate into final design.

Biolac® Basins

Three of the four existing aerated lagoons will be converted to Biolac® basins. The Biolac® process consists of extended aeration without primary sedimentation. The sludge produced by the process is relatively stable and does not benefit much from further stabilization by aerobic digestion. Operating a Biolac® basin for treatment eliminates the need for the existing primary clarifiers and aerobic or anaerobic digesters, further reducing capital, operational, and maintenance costs.

Secondary Clarifiers

LEE & RO evaluated the existing secondary clarifiers to determine for reuse and identify potential cost savings. Among the three existing secondary clarifiers (Nos. 1, 2, and 3), Clarifiers Nos. 1 and 2 are more than 50 years old and are too shallow to provide effective settling capabilities for the projected flows. Two new secondary clarifiers capable of handling the projected flow will be constructed south of the new Biolac® basins. The existing Secondary Clarifier No. 3 will remain in service as a standby.

Solids Handling

As previously discussed, the sludge produced by the Biolac® process is relatively stable and does not require additional stabilization (e.g. digestion), eliminating the need for the existing aerobic digesters. Waste activated sludge (WAS) will be thickened by using rotary drum thickeners, which are economical because they may be installed outdoors and operate with minimum operator attention. Additionally, the rotary drum thickeners use less polymer, energy, and water for operation compared to traditional dewatering technologies (i.e. belt presses or centrifuges).

A new return activated sludge (RAS), WAS, and scum pump station will be constructed west of the new rotary drum thickeners. RAS, WAS, and scum will be distributed as required by the process operations. The existing RAS pump station will remain to distribute the RAS pumped from existing Secondary Clarifier No. 3.

TECHNICAL
APPROACH

Sludge Drying and Storage

LEE & RO evaluated the existing sludge drying beds and determined that they are sufficient for drying the sludge produced by the new Biolac® system. LEE & RO will review further drying beds operation and incorporate improvements such as additional truck access.

UV Treatment

The existing UV treatment facility consists of a Trojan UV 4000 Plus and Calgon UV systems. The Calgon UV system is not currently operating. Since the existing facility is capable of treating the projected peak flow of 11.6 MGD and the structure is in good condition, no structural modifications are required. A new Trojan UV 4000 Plus unit will replace the existing Calgon unit.

Headworks Odor Control

Although the existing headworks does not have severe odor issue, LEE & RO will include a new cost-effective odor control system for the upgraded headworks. New chemical and/or biofilter odor control units will be installed for the headworks area. The odor control units will be vertical reactor vessels constructed of fiberglass reinforced plastic (FRP) – a material ideal for resisting corrosion.

Site Drainage and Plant Access Roads

Operations staff has indicated that stormwater runoff during rain events is of major concern. Runoff from the nearby airport frequently causes plant flooding and interferes with plant operations and maintenance.

LEE & RO will perform a detailed area drainage analysis and include in the design a stormwater handling system (e.g. barriers, catch basins, storm drains, etc.) so that stormwater properly drains into the New River.

The existing plant site has limited paved access to the process units. LEE & RO will analyze the site O&M traffic and include asphaltic concrete paved access roads to major process units for easy O&M access.

Air Conditioning for New Buildings

All new buildings containing electrical equipment (e.g. MCC or variable frequency drives) will be equipped with an air-conditioning system to maintain an optimal temperature for O&M staff as well as the equipment.

Fire Protection

New facilities susceptible to fire damage will be provided with a fire-protection system. LEE & RO will provide the new fire loop with the hydrants in accordance with the requirements of National Fire Protection Association (NFPA).

Plant Water System

The existing WWTP does not have an adequate system for washdown or other non-potable uses. The City is currently purchasing city water for these uses and it is our understanding that the City O&M staff desire to store and reuse a portion of the plant effluent for this purpose.

However, Addendum No.1 to the RFP indicates that the City desires to have potable water for washdown system. During the design, LEE & RO will discuss with the City and determine the source of wash-down water. If the City would like to use potable water from the City, the plant water system discussed herein will not be installed.

If plant water is preferred, LEE & RO will incorporate a new plant water system by repurposing an existing primary or abandoned secondary clarifier as the treated effluent storage tank and install a plant water pump station for distribution. The plant water storage tank will be covered with floating balls to prevent algal growth.



Exhibit 2-2: Proposed Site Layout



TECHNICAL
APPROACH

Flow Routing and Construction Sequencing

The existing WWTP consists of Conventional Activated Sludge (Plant No. 1) and Aerated Lagoons (Plant No. 2). The permitted treatment capacities of each plant are 2.5 MGD and 1.8 MGD, respectively. The historical, average monthly influent flow and peak flows from 2016-2017 were 2.2 MGD and 2.8 MGD, respectively. During construction, the entire flow can be routed to Plant No. 1. In the peak flow event, a portion of the influent flow may need to be routed to the existing Aerated Lagoon No. 4 (which will remain in service and not converted to a Biolac[®] basin). Most likely, Plant No. 1 will be capable of treating the peak flow. With the flow diverted to Plant No. 1, three of the existing Aerated Lagoons (No. 1 – No. 3) will be shut down and converted into Biolac[®] basins. Construction of the new facilities (Aerated Grit Chambers, Influent Pump Station, Secondary Clarifiers, and Sludge Drum Thickeners, etc.) will not impact the operations of Plant No. 1.

The proposed preliminary construction sequencing will be as follows:

1. Remove and dispose of existing mechanical bar screens (one at a time to minimize disruption to operations) and screenings washer/compactor at the existing headworks.
2. Furnish and install new mechanical bar screens and screenings washer/compactor.
3. Construct an odor control structure and install a biofilter at the existing headworks.
4. Route all influent flow to Plant No. 1. Under peak flow conditions, route a portion of the influent to the existing Aerated Lagoon No. 4 (if necessary).
5. Remove and dispose of (or salvage) the existing liner and aerators from existing Aerated Lagoon Nos. 1, 2, and 3.
6. Regrade and construct Biolac[®] basins in place of existing Aerated Lagoon Nos. 1, 2, and 3.
7. Construct a new septage receiving station, aerated grit chambers, influent pump station, secondary clarifiers, and sludge handling facilities.
8. Startup, test, and commission the new Biolac[®] basins and other new processes.
9. Remove and dispose of the existing Calgon UV treatment system and replace with a new Trojan UV 4000 treatment system.
10. Upon successful commissioning of new processes, reroute the existing influent and effluent piping on existing Secondary Clarifier No. 3.
11. Reroute existing RAS and WAS piping on existing RAS and WAS pump stations.
12. Construct a new storm drainage system to the New River.
13. Decommission existing Plant No. 1.

The recommended process flow diagram and construction sequencing is shown in **Exhibit 2-3**

Exhibit 2-3: Proposed Process Flow Diagram and Construction Sequencing

ABBREVIATIONS	
(E)	EXISTING
IPS	INFLUENT PUMP STATION
ML	MIXED LIQUOR
(N)	NEW
PS	PUMP STATION
RAS	RETURN ACTIVATED SLUDGE
RS	RAW SEWAGE
SE	SECONDARY EFFLUENT
TWAS	THICKENED WASTE ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
WW	WASTEWATER

LEGEND	
	EXISTING FACILITY
	NEW FACILITY

BIO/LAC SECONDARY TREATMENT FACILITIES

5. REMOVE AND DISPOSE (E) LINER AND AERATORS FROM LAGOONS.
6. REGRADE AND CONSTRUCT BIO/LAC BASINS.
7. CONSTRUCT A NEW SEPTAGE STATION, GRIT CHAMBER, INFLUENT PUMP STATION, SECONDARY CLARIFIERS, AND SLUDGE HANDLING FACILITIES.
8. STARTUP, TEST AND COMMISSION NEW TREATMENT FACILITIES.

HEADWORKS

1. REMOVE AND DISPOSE (E) MECHANICAL BAR SCREEN, WASHER AND COMPACTOR.
2. INSTALL (N) MECHANICAL BAR SCREEN, WASHER AND COMPACTOR.
3. CONSTRUCT ODOR CONTROL STRUCTURE AND BIOFILTER.

UV SYSTEM

9. REPLACE (E) CALGON UV WITH (N) TROJAN UV 4000.

INFLUENT FLOW ROUTING

4. ROUTE ALL INFLUENT FLOW TO PLANT NO. 1. UNDER PEAK FLOW CONDITION, ROUTE A PORTION OF FLOW TO (E) LAGOON NO. 4.

EXISTING SECONDARY CLARIFIER NO. 3

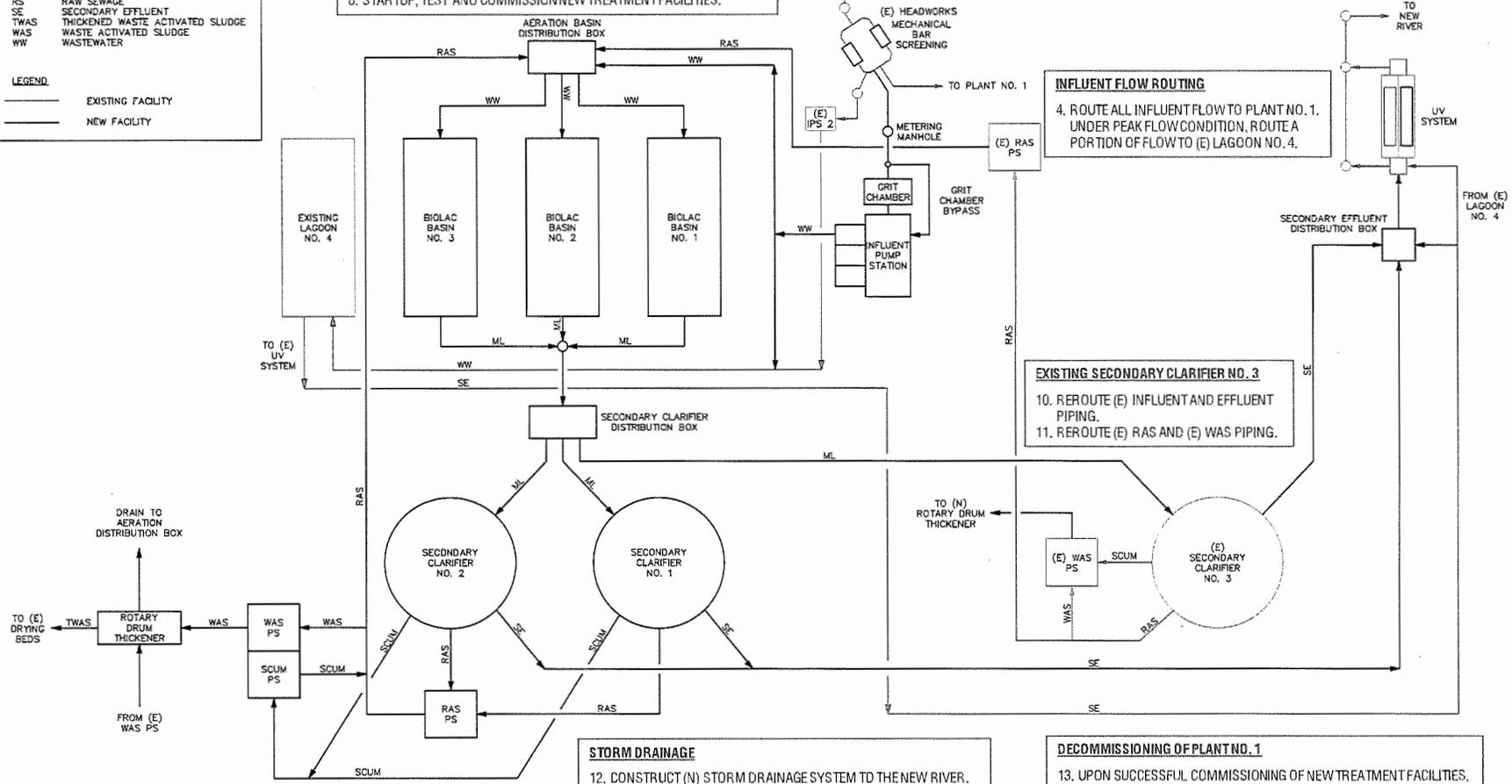
10. REROUTE (E) INFLUENT AND EFFLUENT PIPING.
11. REROUTE (E) RAS AND (E) WAS PIPING.

STORM DRAINAGE

12. CONSTRUCT (N) STORM DRAINAGE SYSTEM TO THE NEW RIVER.

DECOMMISSIONING OF PLANT NO. 1

13. UPON SUCCESSFUL COMMISSIONING OF NEW TREATMENT FACILITIES, DECOMMISSION (E) PLANT NO. 1.



**TECHNICAL
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Preliminary Drawing List

LEE & RO will prepare and submit a complete set of Contract Documents (Construction Drawings, Specifications and Engineer's Estimate of Probable Construction Costs. We have estimated that a total of 250 drawings will be required for this project. A preliminary project drawing list is included on the following page as **Exhibit 2-4**.

Exhibit 2-4: Preliminary Drawing List

Sheet No.	Drawing No.	Drawing Title/Description
General		
1	G-1	Title Sheet, Vicinity Map and Location Map
2	G-2	Drawing Index Sheet
3	G-3	Abbreviations, Symbols and Cross Referencing
4	G-4	Design Criteria
5	G-5	Hydraulic Profile
6	G-6	Process Flow Diagram
7	G-7	Piping System Sheet 1 of 2
8	G-8	Piping System Sheet 2 of 2
9	G-9	Overall Site Plan and Contractor Laydown Area
10	G-10	Plant Cross Section Sheet 1 of 2
11	G-11	Plant Cross Section Sheet 2 of 2
Demolition		
12	D-1	Overall Demolition Site Plan
13	D-2	Headworks Screens – Demolition Plan and Section
14	D-3	Influent Raw Sewage and Headworks Effluent Piping – Partial Demolition Plan and Details
15	D-4	Primary Clarifier Influent Distribution Structure and Piping – Partial Demolition Plan and Details
16	D-5	Primary Clarifier No. 1 – Demolition Plan and Sections
17	D-6	Aerated Lagoon Distribution Piping – Partial Demolition Plan
18	D-7	Secondary Clarifier No. 3 – Piping Partial Demolition Plan and Sections
19	D-8	RAS Pump Station – Partial Equipment Demolition Plan and Details
20	D-9	WAS Pump Station – Partial Equipment Demolition Plan and Details
21	D-10	UV Disinfection Equipment and Distribution Structure – Demolition Plan and Sections
Civil		
22	C-1	Overall Plant Site Plan – Benchmark and Survey Control Points
23	C-2	New Part Layout
24	C-3	General Civil Yard Piping/Paving and Grading Key Plan
25	C-4	Yard Piping Plan Sheet 1 of 4
26	C-5	Yard Piping Plan Sheet 2 of 4
27	C-6	Yard Piping Plan Sheet 3 of 4
28	C-7	Yard Piping Plan Sheet 4 of 4
29	C-8	Yard Piping Details Sheet 1 of 3 – Manhole, Pipe Supports and Concrete Encasement
30	C-9	Yard Piping Details Sheet 2 of 3 – Thrust Block, Valve Box and Pipe Crossings
31	C-10	Yard Piping Details Sheet 3 of 3 – Drain, Air/Vacuum Valve and Backflow Preventer
32	C-11	Paving and Grading Plan Sheet 1 of 4
33	C-12	Paving and Grading Plan Sheet 2 of 4
34	C-13	Paving and Grading Plan Sheet 3 of 4
35	C-14	Paving and Grading Plan Sheet 4 of 4
36	C-15	Paving and Grading Details Sheet 1 of 2 – AC Pavement & Joint, Curb & Ramp, and AC Berm
37	C-16	Paving and Grading Details Sheet 2 of 2 – V-Ditch, Concrete Swale, and Sidewalks
38	C-17	Storm Drain Basin – Plan and Sections
39	C-18	Storm Drain Details – Headwalls, Drainage Channel, and Catch Basin Boxes
40	C-19	Piping Plan and Profile – 36" Influent Sewer Pipeline (To Headworks and Influent PS)
41	C-20	Piping Plan and Profile – 36" Influent Sewer Pipeline (Influent PS to Influent Distribution Structure)
42	C-21	Piping Plan and Profile – 30" Mixed Liquor Pipeline (Biolac to Distribution Structure and to Clarifiers)
43	C-22	Piping Plan and Profile – 18" RAS Pipeline (Clarifiers to RAS PS)
44	C-23	Piping Plan and Profile – 30" RAS Pipeline (RAS PS to Influent Distribution Structure)
45	C-24	Piping Plan and Profile – 36" Secondary Effluent Pipeline (Clarifiers to UV Disinfection Facilities)



Sheet No.	Drawing No.	Drawing Title/Description
Civil (continued)		
46	C-25	Piping Plan and Profile – 24" Aeration Air Pipeline (Blowers to Biolac)
47	C-26	Piping Plan and Profile – 6" WAS Pipeline (WAS PS to Drum Thickener)
48	C-27	Piping Plan and Profile – 6" TWAS Pipeline (Drum Thickener to Drying Beds)
49	C-28	Piping Plan and Profile – Misc. 8" and 6" Scum and Air Pipeline
50	C-29	Paving, Grading and Yard Piping Coordination Data
51	C-30	Cutoff Drain Plan and Sections
52	C-31	Typical Aeration Basin (Biolac) Grading Plan, Sections and Details
53	C-32	Typical Civil Standard Details Sheet 1 of 2 – Typical Water & Sewer Trenches, Guard Post
54	C-33	Typical Civil Standard Details Sheet 2 of 2 – Hose Bibb, Yard Cleanouts, Fence, Block Wall,
55	C-34	Structural General Notes and Design Standards
Structural		
56	S-1	Structural Abbreviations and Symbols
57	S-2	Standard Structural Details Sheet 1 of 3 – Concrete & Expansion Joints, Crack Control and Anchor Installation
58	S-3	Standard Structural Details Sheet 2 of 3 – Handrail Gate, Concrete Stair, Kickplate and Post Embedment
59	S-4	Standard Structural Details Sheet 3 of 3 – Grating & Support, Slab on Grade Pad, Roof Drainage and Ladder
60	S-5	Headworks – Odor Control Structure and Partial Modification Plan
61	S-6	Headworks – Odor Control Structure and Partial Modification Sections and Details
62	S-7	Seplage Station Foundation Plan
63	S-8	Seplage Station Sections and Details
64	S-9	Melering Manhole Plan and Sections
65	S-10	Grit Chamber and Influent Pump Station – Bottom Slab Plan
66	S-11	Grit Chamber and Influent Pump Station – Top Slab Plan
67	S-12	Grit Chamber and Influent Pump Station – Roof Framing Plan
68	S-13	Grit Chamber and Influent Pump Station – Sections Sheet 1 of 2
69	S-14	Grit Chamber and Influent Pump Station – Sections Sheet 2 of 2
70	S-15	Influent Distribution Structure – Plan and Sections
71	S-16	Influent Distribution Structure – Sections and Details
72	S-17	Biolac Aeration Basin Discharge Structure – Plan and Sections
73	S-18	Biolac Aeration Basin Discharge Structure – Sections and Details
74	S-19	Secondary Clarifier Distribution Structure – Plan and Sections
75	S-20	Secondary Clarifier No. 1 and No. 2 – Typical Foundation Plan
76	S-21	Secondary Clarifier No. 1 and No. 2 – Typical Section
77	S-22	Secondary Clarifier No. 1 and No. 2 – Sections and Details
78	S-23	RAS Pump Station Foundation – Plan and Top Plan
79	S-24	RAS Pump Station – Sections and Details
80	S-25	Ferric Chloride Facility – Plan and Sections
81	S-26	Scum/WAS Pump Station – Foundation Plan and Top Plan
82	S-27	Scum/WAS Pump Station – Sections and Details
83	S-28	Secondary Effluent Distribution Structure – Plan and Sections
84	S-29	Secondary Effluent Distribution Structure – Sections and Details
85	S-30	UV Disinfection Facility Partial Modification – Plan and Sections
86	S-31	UV Disinfection Facility Partial Modification – Sections and Details Sheet 1 of 2
87	S-32	UV Disinfection Facility Partial Modification – Sections and Details Sheet 2 of 2
88	S-33	Drum Thickener – Foundation Plan
89	S-34	Drum Thickener – Top Slab Plan
90	S-35	Drum Thickener – Sections and Details
91	S-36	Polymer Station – Plans and Sections
92	S-37	Electrical Building – Foundation Plan
93	S-38	Electrical Building – Roof Framing and Roof Drainage Plans
94	S-39	Electrical Building – Elevations
95	S-40	Electrical Building – Sections
96	S-41	Blower Building – Foundation Plan
97	S-42	Blower Building – Roof Framing and Roof Drainage Plans
98	S-43	Blower Building – Elevations
99	S-44	Blower Building – Sections
100	S-45	Emergency Generator – Foundation Plan, Sections and Details



Sheet No.	Drawing No.	Drawing Title/Description
Mechanical		
101	M-1	Mechanical Standard Details – Pipe Guide, Hanger and Support System
102	M-2	Mechanical Standard Details – Structural Attachments and Pipe Support Assembly
103	M-3	Mechanical Standard Details – Pipe Seismic Restraints and Penetration Details
104	M-4	Mechanical Standard Details – Mechanical Plumbing Details
105	M-5	Mechanical Standard Details – Instrumentation Installation Details
106	M-6	Electrical Building – HVAC Plan and Sections
107	M-7	Blower Building – HVAC Plan and Sections
108	M-8	Headworks Modifications and Screens Installation – Plan
109	M-9	Headworks Modifications and Screens Installation – Sections and Details
110	M-10	Headworks Odor Control Biofilter Plan, Sections and Details
111	M-11	Septage Station – Plan, Sections and Details
112	M-12	Grit Chamber and Influent Pump Station – Plan
113	M-13	Grit Chamber and Influent Pump Station – Sections
114	M-14	Grit Chamber and Influent Pump Station – Sections and Details
115	M-15	Influent Metering Manhole – Plan and Sections
116	M-16	Raw Sewage and Aeration Basin Distribution Structures – Plan
117	M-17	Raw Sewage and Aeration Basin Distribution Structures – Sections and Details
118	M-18	Biolac Aeration Basin No. 1 Air Piping Header – Plan
119	M-19	Biolac Aeration Basin No. 2 Air Piping Header – Plan
120	M-20	Biolac Aeration Basin No. 3 Air Piping Header – Plan
121	M-21	Biolac Aeration Basins – Typical Sections
122	M-22	Biolac Aeration Basins – Typical Details
123	M-23	Blower Building – Plan
124	M-24	Blower Building – Sections and Details
125	M-25	Mixed Liquor Distribution Structure – Plan and Section
126	M-26	Mixed Liquor Distribution Structure – Sections and Details
127	M-27	Secondary Clarifier No. 1 and No. 2 – Typical Plan
128	M-28	Secondary Clarifiers – Typical Sections and Details
129	M-29	Secondary Clarifier No. 3 (Existing) – Modification Plan
130	M-30	Secondary Clarifier No. 3 (Existing) – Modification Sections and Details
131	M-31	RAS Pump Station – Plan
132	M-32	RAS Pump Station – Sections and Details
133	M-33	Ferric Chloride Facility – Plan
134	M-34	Ferric Chloride Facility – Sections and Details
135	M-35	Scum/WAS Pump Station – Plan
136	M-36	Scum/WAS Pump Station – Sections and Details
137	M-37	Secondary Effluent Distribution Structure – Plan and Sections
138	M-38	Secondary Effluent Distribution Structure – Sections and Details
139	M-39	Modified UV System – Plan
140	M-40	Modified UV System – Sections and Details
141	M-41	Modified UV System – Inlet and Outlet Piping Plan
142	M-42	Modified UV System – Inlet and Outlet Piping Sections and Details
143	M-43	Drum Thickener – Plan
144	M-44	Drum Thickener – Sections and Details
145	M-45	Polymer Station – Plans
146	M-46	Polymer Station – Sections and Details
147	M-47	NPW Storage Tank – Modification Plan
148	M-48	NPW Storage Tank – Modification Sections and Details
149	M-49	NPW Pump Station – Plan and Sections
150	M-50	Existing RAS Pump Station – Modification Plan and Sections
151	M-51	Existing Scum Piping Modification Plan and Details
152	M-52	Generator Plan and Sections
Electrical		
153	E-1	Electrical Symbols and Abbreviations
154	E-2	Electrical Site Plan Sheet 1 of 3
155	E-3	Electrical Site Plan Sheet 2 of 3



Sheet No.	Drawing No.	Drawing Title/Description
Electrical (continued)		
155	E-4	Electrical Site Plan Sheet 3 of 3
157	E-5	Electrical Site Lighting Plan Sheet 1 of 3
158	E-6	Electrical Site Lighting Plan Sheet 2 of 3
159	E-7	Electrical Site Lighting Plan Sheet 3 of 3
160	E-8	Existing MCC Demolition Sheet 1 of 2
161	E-9	Existing MCC Demolition Sheet 2 of 2
162	E-10	Existing Service Single Line Diagram Demolition Sheet 1 of 2
163	E-11	Existing Service Single Line Diagram Demolition Sheet 2 of 2
164	E-12	New Service Single Line Diagram Sheet 1 of 2
165	E-13	New Service Single Line Diagram Sheet 2 of 2
166	E-14	MCC Elevations Sheet 1 of 3
167	E-15	MCC Elevations Sheet 2 of 3
168	E-16	MCC Elevations Sheet 3 of 3
169	E-17	Single Line Diagram Sheet 1 of 2
170	E-18	Single Line Diagram Sheet 2 of 2
171	E-19	Panel Board Schedule Sheet 1 of 3
172	E-20	Panel Board Schedule Sheet 2 of 3
173	E-21	Panel Board Schedule Sheet 3 of 3
174	E-22	Headworks Screens Control Diagram
175	E-23	Grit Pump/Washer Control Diagram
176	E-24	Influent Pumps Control Diagram
177	E-25	Blowers Control Diagram
178	E-26	RAS Pumps Control Diagram
179	E-27	Scum/WAS Pumps Control Diagram
180	E-28	Ferric Chloride and Polymer Metering Pump Control Diagram
181	E-29	Drum Thickeners Control Diagram
182	E-30	Sludge Pumps Control Diagram
183	E-31	UV System Control Diagram
184	E-32	NPW Pump Control Diagram
185	E-33	Miscellaneous Equipment Control Diagrams
186	E-34	Electrical Building – Electrical Plan
187	E-35	Electrical Building – Lighting and Grounding Plan
188	E-36	Blower Building – Electrical Plan
189	E-37	Blower Building – Lighting and Grounding Plan
190	E-38	Lighting Fixture Schedules
191	E-39	Headworks Electrical Modification Plan
192	E-40	Septage Station Electrical Plan
193	E-41	Influent Metering Manhole Electrical Plan
194	E-42	Grit Chamber and Influent Pump Station Electrical Plan
195	E-43	Biolac Aeration Basin No. 1 Air Piping Header Power and Control Plan
196	E-44	Biolac Aeration Basin No. 2 Air Piping Header Power and Control Plan
197	E-45	Biolac Aeration Basin No. 3 Air Piping Header Power and Control Plan
198	E-46	Secondary Clarifier No. 1 Electrical Plan
199	E-47	Secondary Clarifier No. 2 Electrical Plan
200	E-48	Existing Secondary Clarifier No. 3 Electrical Modification Plan
201	E-49	RAS Pump Station Electrical Plan
202	E-50	Ferric Chloride Facility Electrical Plan
203	E-51	Existing RAS Pump Station Electrical Modification Plan
204	E-52	WAS/Scum Pump Station Electrical Plan
205	E-53	Existing WAS Pump Station Electrical Modification Plan
206	E-54	UV Disinfection System Electrical Plan
207	E-55	Drum Thickener Electrical Plan
208	E-56	NPW Storage Tank and Pump Station Electrical Plan
209	E-57	Generator Electrical Plan
210	E-58	Cable and Conduit Schedules Sheet 1 of 4
211	E-59	Cable and Conduit Schedules Sheet 2 of 4



Sheet No.	Drawing No.	Drawing Title/Description
Electrical (continued)		
212	E-60	Cable and Conduit Schedules Sheet 3 of 4
213	E-61	Cable and Conduit Schedules Sheet 4 of 4
214	E-62	Electrical Standard Details 1 – Electrical Duct Bank and Guard Post
215	E-63	Electrical Standard Details 2 – Electrical Manhole, Panel Mount Stand and Motor Connections
216	E-64	Electrical Standard Details 3 – Lightings Post, Fixture Mount, Ground Well and Equipment Grounding
217	E-65	Electrical Standard Details 4 – Conduit Support Type 1, Type 2 and Type 3
Instrumentation		
218	I-1	P&ID - Instrumentation Legend, Symbols and Abbreviations
219	I-2	P&ID – SCADA Block Diagram
220	I-3	P&ID – PLC Cabinet Layout Sheet 1 of 2
221	I-4	P&ID – PLC Cabinet Layout Sheet 2 of 2
222	I-5	P&ID – New Screens at Existing Headworks
223	I-6	P&ID – Metering Manhole
224	I-7	P&ID – Septage Receiving Station
225	I-8	P&ID – Grit Chamber
226	I-9	P&ID – Influent Pump Station
227	I-10	P&ID – Raw Sewage and Aeration Basin Distribution Structures
228	I-11	P&ID – Biolac Aeration Basin No. 1
229	I-12	P&ID – Biolac Aeration Basin No. 2
230	I-13	P&ID – Biolac Aeration Basin No. 3
231	I-14	P&ID – Aeration Basin Blower Sheet 1 of 2
232	I-15	P&ID – Aeration Basin Blower Sheet 2 of 2
233	I-16	P&ID – Mixed Liquor Distribution Structure
234	I-17	P&ID – Secondary Clarifier No. 1
235	I-18	P&ID – Secondary Clarifier No. 2
236	I-19	P&ID – Secondary Clarifier No. 3 (Existing)
237	I-20	P&ID – Secondary Effluent Distribution Structure
238	I-21	P&ID – Modified UV Disinfection System
239	I-22	P&ID – RAS Pump Station
240	I-23	P&ID – RAS Pump Station (Existing)
241	I-24	P&ID – Ferric Chloride Facility
242	I-25	P&ID – WAS/Scum Pump Station
243	I-26	P&ID – WAS Pump Station (Existing)
244	I-27	P&ID – Rotary Drum Thickener
245	I-28	P&ID – Polymer System
246	I-29	P&ID – NPW Storage Tank
247	I-30	P&ID – NPW Pump Station
248	I-31	P&ID – Generator
249	I-32	P&ID – PLC Input/Output Lists – Sheet 1 of 2
250	I-33	P&ID – PLC Input/Output Lists – Sheet 2 of 2



Section 3

PROJECT SCOPE OF WORK

The scope of work (SOW) for this project consists of the following tasks. Please note the tasks descriptions are presented to allow the City to review engineering effort for the task effort. LEE & RO expects that the final scope of work may be subject to change during the contract negotiation.

SCOPE | Task 1: Project Management and Coordination

1. Work Plan:

LEE & RO will prepare a work plan within two weeks from the date of Notice to Proceed. The work plan will consist of project description, communication plan, schedule with major submittal and meeting milestones, project documentation procedures, progress reports, quality control plan, risk assessment and contingency plan.

Deliverable:

1) Work plan

2. Project Management and Coordination:

LEE & RO will manage, report, and coordinate Final Design production under this task. LEE & RO will be responsible for scheduling and coordinating the meetings with the City and regulatory agencies, preparing meeting agendas and minutes. LEE & RO will also submit monthly status reports with invoices summarizing the project progress and status.

Deliverables:

- 1) Agenda and minutes for a kick-off meeting
- 2) Agenda and minutes for six (6) progress/project coordination meetings
- 3) Agenda and minutes for four (4) design review meetings
- 4) Agenda and minutes for four (4) coordination meetings with regulatory agencies

Task 2: Project Quality Assurance and Quality Control (QA/QC)

LEE & RO will administer and perform an effective QA/QC for each design submittal, including comprehensive and integrated design reviews, inter-discipline coordination checks, and other document checking and review procedures. Each discipline (e.g. civil, structural, mechanical, electrical, etc.) will perform detailed internal checking of all calculations, drawings, specifications, and cost estimates. Inter-discipline checks will also be performed to minimize conflicts and omission between disciplines (e.g. piping, structural framing and electrical conduits).

Deliverable:

1) A transmittal letter attesting to the details of the review, listing drawings and specification sections reviewed

Task 3: Record Research & Review and Site Investigation

LEE & RO will perform a thorough site investigation and record research until all available record drawings of existing wastewater treatment facilities are obtained. LEE & RO will coordinate with the City to obtain the record drawings. LEE & RO will field research and identify the location of existing utilities in the proposed construction area.

Deliverable:

1) Electronic copies of all relevant information obtained from record research and site investigation.

Task 4: Geotechnical Investigation

LEE & RO reviewed the geotechnical investigation report prepared by Landmark in May 2006. LEE & RO proposes a limited geotechnical investigation to supplement the 2006 report. Up to five new borings up to a depth of 75 feet will be made near the new secondary clarifiers, aerated grit removal chambers and flow distribution structures. Landmark (LEE & RO's subconsultant) will drill, log, and sample each boring to characterize the subsurface soils. The boring depth will be determined in accordance with the depth of the proposed structures. The boring will be backfilled with soils and patched with cold mix asphalt where asphalt is penetrated. LEE & RO will submit the geotechnical report to the City to document findings. The recommended geotechnical parameters will be used for the foundation and structural design of structures and pipelines.

Deliverables:

- 1) List of proposed geotechnical boring locations
- 2) Five copies of geotechnical report

SCOPE | **Task 5: Surveying**

LEE & RO will perform through Prizm Group (LEE & RO's subconsultant) site topographic survey. The topographic survey map will be prepared with 1-foot contour line, covering the entire plant property including the plant outfall, drying beds and portion of the airfields. The survey will be tied horizontally to the California State Plane Coordinate system, Zone 6 (NAD83) and vertically to the City or County benchmark nearest to the site on the NAVD88 datum.

Deliverable:

- 1) Electronic copy of survey map

Task 6: Permit Assistance and Agency Coordination

LEE & RO will assist the City with processing and obtaining all required permits and design document approval from the state of California, Regional Water Quality Control Board (RWQCB) and Imperial County. LEE & RO will prepare and submit applications of NPDES permit revision to RWQCB, permit application and approval of new emergency generator to the Imperial County Air Pollution Control District, and the Stormwater Pollution Prevention Plan (SWPPP) for the construction to the state of California.

Deliverables:

- 1) Permit application/approval for new emergency generator
- 2) Application for revised NPDES permit
- 3) Electronic SWPPP application
- 4) Application of Imperial County Building Permits

Task 7: Final Design

LEE & RO will prepare a set of Contract Documents (Plans & Specifications) – covering general, civil/site, demolition, yard piping, architectural, structural, mechanical, electrical, and instrumentation and controls (P&IDs).

The Contract Documents will be prepared using the City's standard format, standard forms, standard front-end documents, pertinent technical specifications and standard drawings. The drawings will be prepared in AutoCAD and all specification will be prepared in MS word format. LEE & RO will prepare four (4) submittals described below.

1. 30% Design Submittal: Preliminary level of design. A site plan will show the locations of the proposed new facilities and the plant hydraulics will be evaluated. The preliminary P&IDs will also be provided for the City's review. Also, the specifications outlines & contents will be submitted.
2. 60% Design Submittal: Plans for this submittal will include detailed components of the facilities, including civil/site, mechanical, and electrical/instrumentation plans, sections and details. All sections of the specifications will be included along with a probable construction estimate.
3. 90% Design Submittal: This submittal will include near-complete Plans, front-end Contract Documents and Technical Specifications, and an engineer's estimates of probable construction cost. The 90% submittal will incorporate all City's comments from the 60% design review meeting.
4. Final (100%) Design Submittal: After the City completes the review of the 90% submittal, LEE & RO will prepare and submit Final Contract Documents including final construction cost estimate. The Final Contract Documents will incorporate all City's comments from the 90% review. The Final Contract Documents will be stamped and signed construction plans and specifications.

Deliverables:

- 1) 30%, 60% and 90% Design Submittals:
 - Six (6) sets of half-size drawings, specifications, and probable construction cost estimates
- 2) Final (100%) Design Submittal:
 - Two (2) sets of full-size drawings
 - Three (3) sets of half-size drawings
 - One (1) set of original specifications plus three (3) copies
 - One (1) copy of construction cost estimates
 - Two (2) copies of bound final engineering calculations for all disciplines
 - One (1) electronic copy of the plans and specifications



SCOPE

Task 8: Engineer's Estimate of Probable Construction Cost

LEE & RO will provide to the City an estimate of the probable construction cost for the complete project. Two formats of the estimates will be provided; (1) fully detailed cost breakdown and (2) in the format of bid items prepared for the Construction Specifications. Construction cost estimates will be provided with 60%, 90% and final (100%) submittal.

Deliverable:

- 1) 60%, 90% and final (100%) construction cost estimates

Task 9: Bid Phase Support Services

LEE & RO will conduct a pre-bid conference/job walk and respond to bidders' inquiries. During the bidding, LEE & RO will assist the City with providing responses and clarifications to the Contract Documents in response to bidders' inquiries. LEE & RO has assumed three (3) addenda will be processed by the City during the bid process.

After bid opening, LEE & RO will review, and tabulate bids received and make award recommendation to the City. LEE & RO will prepare the Conformed Plans and Specifications by incorporating all addenda. LEE & RO will submit electronic copy, half-size plans and full-size plans for Confirmed Documents.

Deliverables:

- 1) Pre-bid meeting agenda and minutes.
- 2) Three (3) addenda.
- 3) Conformed plans and specifications (one CD, two half size plans, three full size plans)

Task 10: Construction Phase Engineering Services

During the construction, LEE & RO will provide the following construction phase services;

1. Preconstruction Meeting: Prepare agenda and attend the preconstruction meeting with the City and Contractor. Prepare and submit the preconstruction meeting minutes.
2. Shop Drawing and submittal Review: Review and take action for up to two hundred fifty (250) shop drawings and submittals for first review, one hundred twenty (120) shop drawings for second review, and fifty (50) shop drawings for third review.
3. Respond to Contractor's Requests for Information (RFIs): Respond up to two hundred (200) RFIs from the Contractor.
4. Assist with Construction Change Orders (COs): Assist the City with preparation of up to 20 construction change orders. Participate in negotiation with the Contractor for certain significant COs. Prepare drawing revision and cost estimates.
5. Construction Meetings: LEE & RO will attend up to sixteen (16) construction meetings at the project site.
6. Review Contractor's Plant Startup and Commissioning Plan: LEE & RO will review and provide comments for the Contractor's plant startup and commissioning plan.
7. As-Built Record Drawings: At the completion of the construction, the Contractor will provide LEE & RO with a consolidated set of the red-lined field marked-up as built drawings. LEE & RO will prepare the as-built record drawings and provide the City with mylar drawings and a CD.

Deliverables:

- 1) Pre-construction meeting agenda and minutes.
- 2) Shop drawing reviews and RFI responses
- 3) Revised drawings and cost estimates per change orders
- 4) Construction meeting agenda and minutes
- 5) Review comments/recommendation to the Plant Startup and Commissioning Plan
- 6) As-built record drawings (one set of Mylar drawings and one CD)

Section 4 REPRESENTATIVE PROJECT EXPERIENCE

The following projects describe the LEE & RO team's related experience for similar wastewater treatment facility upgrading and expansion projects with client references. Following representative project descriptions, we included a matrix (**Exhibit 4-1**) highlighting our wastewater treatment and water recycling plant projects.

Wastewater Treatment Plant Upgrading

City of Brawley

Client Reference:
Guillermo Sillas,
Public Works Director
(760) 344-5800

Awarded
"2012 APWA Project
of the Year"



LEE & RO provided planning, preliminary design report, final design, construction management and resident engineering services for the \$25 million Wastewater Treatment Plant (WWTP) Improvements project. The existing 5.9 MGD WWTP consisted of a headworks, three primary clarifiers, five facultative lagoons, and drying beds. LEE & RO prepared a detailed project report presenting a systematic approach for the requisite improvements. LEE & RO assisted the City in successfully obtaining \$15 million from the Clean Water State Revolving Fund (CWSRF) and a \$10 million federal grant under the American Recovery and Reinvestment Act of 2009 (ARRA). Wastewater and sludge handling processes designed and constructed included three Biolac® WaveOx aeration basins and secondary clarifiers, gravity thickening, centrifuge sludge dewatering, solar greenhouses for Class A Biosolids, an operations building, and rehabilitation of headworks and other support facilities. The project was designed and constructed on a tight time schedule under a Cease and Desist Time Schedule Order issued by the Regional Water Quality Control Board. The upgraded plant has been producing an effluent quality that exceeds the NPDES permit requirements. This project received "Project of the Year" award from the San Diego / Imperial County Chapters of the American Public Works Association in 2012.

Wastewater Treatment Plant Upgrading

City of Holtville

Client Reference:
Frank Cornejo
Water/Wastewater
Operations Supervisor
(760) 356-3186



LEE & RO prepared a preliminary design report and final design and provided construction support services for \$11.5 million upgrades to the existing 0.85 MGD WWTP consisting of headworks, primary clarifiers, trickling filters, secondary clarifiers, DynaSand filters, UV disinfection, aerobic sludge digesters, and sludge drying beds. The existing plant have been subject to the Region 7 Regional WQCB's cease and desist orders for many years due to non-compliance of effluent ammonia and toxicity limitations. LEE & RO performed process analysis and prepared an engineering report. In accordance with the report approved by RWQCB, LEE & RO prepared final design of headworks with a septage receiving facility, grit removal, a Biolac® WaveOx activated sludge basin with two integral secondary clarifiers and aeration blowers, a rotary drum sludge thickener and drying beds, a new operations building, and a new MCC building. LEE & RO assisted the City in obtaining funding from the Clean Water State Revolving Fund (CWSRF), NAD Bank, and Border Environmental Coordination Commission (BECC). LEE & RO also provided construction support services. The newly constructed plant has been producing the effluent meeting all NPDES requirements including the ammonia nitrogen limit of 1.9 mg/l.

**Water Recycling
Plant No. 4
Expansion and
Upgrading
Coachella
Valley Water
District**

Client Reference:
Armando Rodriguez,
Assistant Director
of Engineering
(760) 398-2661



LEE & RO prepared the master plan, preliminary design report and provided final design, and CM/Resident Engineering services for a \$21 million plant expansion and modification project at Water Recycling Plant No. 4 (WRP4). The existing WRP4 consisted of two pre-aeration ponds, a headworks structure with a mechanically cleaned bar screen (and odor control system), four aeration lagoon modules (each consisted of four aerated ponds and two polishing ponds), and chlorination and dechlorination facilities. The total treatment capacity of the existing four aerated lagoon modules was 6.9 MGD. This project increased the WRP 4 treatment capacity to 10 MGD and a new biosolids dewatering facility was provided. The project components included: a headworks with flow metering structure and 24-inch influent sewer; two new Biolac® activated sludge basins and a new blower building with two 7,500 cfm capacity Turblex blowers; two new circular secondary clarifiers and RAS/WAS pumping stations; new 10 MGD chlorination and dechlorination facility with contact basins and chlorine/sulfur dioxide storage buildings; gravity belt sludge thickening and belt press dewatering facility with a truck loading station; septage/debris disposal facility; a 1,250 kW emergency generator and electrical power distribution, and instrumentation & controls; and site work including paved service roads.

**Water Recycling
Plant No. 10 Upgrades
& Rehabilitation
Coachella Valley
Water District**

Client Reference:
Armando Rodriguez,
Assistant Director
of Engineering
(760) 398-2661



For 18 MGD capacity Water Recycling Plant No. 10 (WRP10), LEE & RO has completed four upgrading / rehabilitation projects. LEE & RO prepared preliminary design reports, final designs and construction support services for: \$5 million rehabilitation to activated sludge secondary process units; and \$11.5 million upgrading to the tertiary filtration, disinfection systems and recycled water storage and high/low pressure recycled water pumping stations; \$2 million upgrades to the plant headworks. The secondary plant elements included resizing and replacement of RAS and WAS pumps, VFDs and electrical and I&C systems; replacement of 54 slide gates in the aeration basins and mixed liquor channels; replacement of scum skimmers and scum pump stations; installation of channel agitation system for mixed liquor distribution channels; hydraulic modification of the RAS system from secondary clarifiers to RAS pump stations; replacement of tank drain valves; and associated electrical and control systems. The tertiary upgrading project elements included addition of 5 MGD capacity tertiary filters, new 10 MGD chlorine contact tank, new chlorine storage/chlorinator building, and high- and low head recycled water pump stations.

**Southside Plant
Upgrading
J. B. Latham
Wastewater
Treatment Plant**

**South Orange
County
Wastewater
Authority**

Client Reference:
Brian Peck
Director of Engineering
(949) 234-5411



LEE & RO provided condition assessment, preliminary engineering, final design, and construction support services for \$7 million plant improvements at the 13 MGD capacity JBLWTP consisted of power supply upgrades, enhanced primary coagulation, rehabilitation of rectangular secondary clarifiers, and structural concrete rehabilitation. A new electrical building was constructed to house new switchgear and motor control centers (MCCs) which supplies power to 3 existing MCCs and 4 new MCCs. New duct banks, conduits, and electrical feeders were constructed throughout. The enhanced primary treatment project included a ferric chloride storage tank, metering pumps, and polymer system. New chain & flight sludge collector with 316 SST shaft and SST launders with FRP weirs were installed in 13 secondary clarifiers. Also 316 SST slotted skimmers and telescoping valves were installed. The mixed liquor isolation gates were replaced with 316 SST downward opening slide gates. Throughout the plant failing and spalled concrete were reconstructed to the original lines and grades with casted new imbeds and coated. The construction was completed in August 2017.

**Wastewater
Treatment Plant
Phases I and II
Upgrading Projects**

**Valley Sanitary
District**

Client Reference:
*Joe Glowitz,
General Manager
(760) 238-5410*



LEE & RO has provided master planning, engineering and construction management/resident engineering and inspection services for plant capacity expansion from 7.5 to 13.5 MGD, upgrading treatment processes to comply with higher effluent quality specified in the NPDES permit, and rehabilitate aging facilities for process reliability & efficiency improvements. LEE & RO was responsible for process analysis, development of a plant master plan, preparation of technical memoranda, preparation of plans

& specifications, bid phase services, and construction management/resident engineering services for a \$45 million expansion which was implemented in two phases.

The \$25 million Phase 1 project, which has been in operation since 2009, increased the activated sludge plant capacity from 5 to 10 MGD. The Phase 1 facilities included new aeration blowers, modification of aeration basins (anoxic and oxic cells), installation of fine bubble air diffusers, circular secondary clarifiers, chlorine contact tanks, a 54-inch outfall, and sludge thickening and belt press dewatering facilities. The construction of the \$20 million Phase 2 project which was completed in 2014 included upgrades to the headworks, addition of a new Wemco grit classifier to the existing Aerated Grit Facility, new rectangular primary clarifiers, anaerobic digester with a gas management facility, odor control, two new 800 kW and 500 kW emergency generators, modifications to the Administration Building and the addition of a new Operations/Laboratory Building.

**Avenue 54 Wastewater
Treatment Plant
Phase 2 Upgrades**

**City of
Coachella**

Client Reference:
*Jerry Jimenez
Sanitary Sewer
Superintendent
(760) 391-5008*



LEE & RO provided study, engineering, design, CM/Resident Engineering services for the \$5.5 million Phase 2 Expansion at the 4.5 mg Avenue 54 Wastewater Treatment Plant (WWTP). The Phase 2 Expansion consisted of rehabilitating and upgrading two contact stabilization process tanks (CSTs) having a total capacity of 1.5 MGD capacity, addition of sludge drying beds, replacement of aeration blowers, and associated site improvements and electrical & SCADA systems. The

Phase 2 CST upgrades included installation of new fine-bubble diffusers in the contact and reaeration tanks, new waste activated sludge (WAS) pumps and piping, new return activated sludge (RAS) pumps and piping, new digested sludge wasting pumps, new aeration blowers, integration of new CST equipment into the PCS SCADA system, additional sludge drying beds including extension of the WAS force main, new piping and valves for new drying beds, underdrain and supernatant lines and water spray-down stations. This project was funded by the U. S. Department of Agriculture (USDA). LEE & RO prepared USDA required documentation in compliance with the USDA funding. As the construction manager, LEE & RO coordinated the ARRA's Buy American requirements as well as ARRA Labor Compliance during construction. LEE & RO attended all USDA coordination meetings and other project review meeting and successfully secured the USDA funds. Construction was complete in July 2012.

On the following page, LEE & RO presents **Exhibit 4-1** showing the depth and breadth of our planning and engineering experience with Wastewater Treatments.

Exhibit 4-1: LEE & RO Wastewater Treatment & Recycling Plant Engineering Experience

Unit Process or Project Elements Facility Name and Owner	Capacity (Average Flow) Million Gallons per Day (MGD)	Plant Influent / Effluent Pumping	Process & Hydraulic Analysis and Report Preparation	UNIT PROCESS									Recycled Water Pumping & Pipelines	Const. Mgmt. (CM) & Resident Engineering (RE)
				Headworks (Screenings & Grit Removal)	Primary Treatment	Secondary Processes (Biological & Chemical)	Nitrogen Removal (NdeN)	Tertiary Treatment (Title 22 Water Recycling)	Disinfection (Chlorination / Dechlorination and/or UV Systems)	Sludge Thickening, Digestion, Dewatering & Drying	Energy Recovery from Digester Gas	Odor Control & Treatment		
Hyperion WWTP, City of Los Angeles	420	X	X	X	X	X				X	X	X	X	X
WWTP No. 2 Orange County Sanitation District, Fountain Valley	200	X	X	X	X	X				X	X	X	X	X
Point Loma WWTP, City of San Diego	240		X	X	X						X	X		
Regional WWTP, Sacramento Regional County Sanitation District	200		X	X	X									
WWTP No. 1, Orange County Sanitation District, Fountain Valley	200	X	X	X	X					X	X	X	X	
Donald Tillman WRP, City of Los Angeles	80	X						X						X
Ed. C. Little WRP, El Segundo, West Basin MWD	45		X			X		X	X				X	X
WRP No. 1, Inland Empire Utilities Agency, Chino	40		X	X	X	X				X	X	X		
Regional Water Quality Control Plant, City of Riverside	40		X			X		X	X				X	
Encina Water Pollution Control Facility, Carlsbad	38		X	X	X	X					X	X		X
North City WRP, City of San Diego	30	X						X			X		X	
Long Beach WRP, Los Angeles County Sanitation Districts	25									X				
Sludge Processing Plant (RP 5), Inland Empire Utilities Agency, Chino	N/A										X			
Los Angeles Glendale WRP, City of Los Angeles	20	X	X	X	X	X	X	X	X	X			X	X
WRP No. 10, Coachella Valley Water District, Palm Desert	18	X	X	X	X	X		X	X	X			X	X
Latham WWTP, South Orange County WW Authority, Dana Point	15	X	X	X	X	X			X	X				
Michelson WRP, Irvine Ranch Water District	15	X	X	X	X	X		X		X			X	
Hill Canyon WWTP, City of Thousand Oaks	14	X	X	X	X					X		X		
Valley Sanitary District WWTP, Indro	13.5	X	X	X	X		X			X	X	X		X
Pomona WRP, Los Angeles County Sanitation District, Whittier	13					X				X				
Water Pollution Control Plant, West County Water District, Richmond	12.5									X				
Regional WWTP, So. Orange County Wastewater Authority, Dana Point	12	X	X		X	X					X	X		X
Carbon Canyon WRP, Inland Empire Utilities Agency, Chino	12		X							X			X	
City of San Mateo WWTP	12												X	
WRP No. 4, Coachella Valley Water District, Palm Desert	9.9	X	X	X	X	X	X			X	X			X
Coastal WWTP, So. Orange County Wastewater Authority, Dana Point	6.7		X					X						
Plant 3A, So. Orange County Wastewater Authority, Dana Point	6		X			X								
Brawley WWTP, City of Brawley, Imperial County	5.9	X	X	X	X	X	X			X	X			X
WRP, El Toro Water District, Laguna Hills	5.5	X	X	X	X	X					X		X	
WRP No. 7, Coachella Valley Water District, Palm Desert	5	X	X	X	X	X		X	X	X			X	X
City of Coachella WWTP, Riverside County	4	X	X	X	X	X	X				X			X
City of Calexico WWTP, Imperial County	3	X	X	X	X	X				X	X			
City of Patterson WWTP, Stanislaus County	3	X	X	X	X	X	X			X	X			X
City of Blythe WWTP, Riverside County	2.5		X	X	X	X	X				X			
California State Prison WWTP, Blythe	2	X	X	X	X	X				X	X		X	
City of Beaumont WRP, Riverside County	2	X	X	X	X	X	X	X	X	X				
City of Calipatria WWTP, Imperial County	1.7		X			X	X			X	X			
Angels Camp WRP, City of Angels, Calaveras County	1.5	X	X	X	X	X	X	X	X	X			X	X
Domex Industrial WWTP, Mexicali, Mexico	1.5	X	X	X	X	X					X		X	X
City of Hollville WWTP, Imperial County	1	X	X	X	X	X	X			X	X			X
Iona WWTP, Amador County	0.8	X	X	X	X	X				X	X			
Copper Cove WWTP, Calaveras County Water District	0.5		X	X	X	X				X	X			
Trancas WWTP, Los Angeles County	0.25		X	X	X	X		X	X	X		X		
Phillips Laboratory WRP, Edwards Air Force Base, Lancaster	0.2	X	X	X	X	X		X	X	X				X
Malibu Water Pollution Control Facility, Los Angeles County	0.1	X	X	X	X	X		X	X	X		X		
LA County Fire Camp 13 WWTP, Santa Monica Mountain	0.02	X		X	X	X			X	X				
WRP No. 1, Coachella Valley Water District, Palm Desert	0.02	X	X	X	X	X								
WRP No. 2, Coachella Valley Water District, Palm Desert	0.03	X	X	X	X	X								

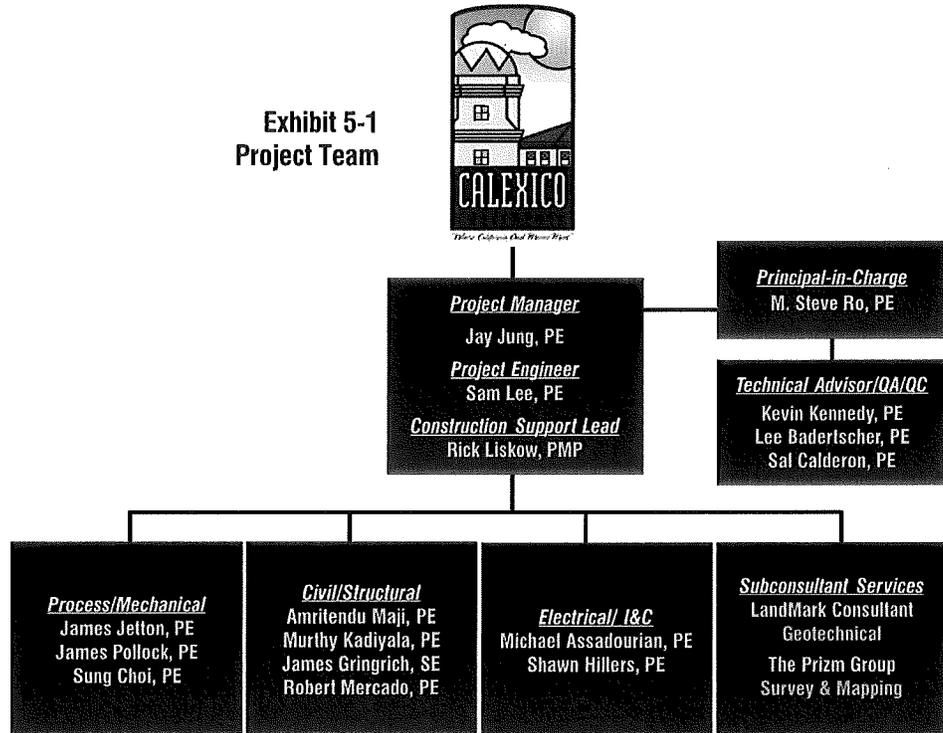


Section 5 PROPOSED PROJECT TEAM

LEE & RO's key team members chosen for the City of Calexico's Wastewater Treatment Plant Upgrading and Expansion Project have extensive experience executing a wide variety of wastewater infrastructure systems projects. LEE & RO proposes **Jay Jung, PE as the Project Manager**. Jay has over 15 years of treatment process engineering and plant design experience. We have also designated the firm's founding principal, **M. Steve Ro, PE, as the Principal-in-Charge**, who will be directing the project team and serve as the City of Calexico's management contact.

The proposed project team organization is shown in **Exhibit 5-1**. Also, the team members are briefly introduced in this Section. The full resumes of the proposed team members are included in **Appendix A**.

**Exhibit 5-1
Project Team**



PROJECT TEAM



Jay Jung, PE/Project Manager

Jay Jung has over 15 years of process research & selection and design, as well as facility engineering & design and construction engineering experience in the municipal water and wastewater treatment fields. His areas of expertise include pilot or full-scale testing, sampling and data analysis, and selection, development and sizing of treatment process trains. He also has experience with feasibility studies, analysis of existing process trains, master planning & preliminary design reports, and preparation of construction documents for new process trains or upgrading and rehabilitation of existing plant facilities.

Jay has developed plant design criteria, P&IDs, hydraulic profiles, and detailed design drawings for a wide variety of wastewater treatment facilities. His area of expertise includes biological nutrient removal, chemical conditioning, disinfection, granular activate carbon adsorption, and membrane filtration. Jay has recently worked on the following wastewater treatment plant projects located in Riverside and Imperial Counties:

1. Assistant Project Manager, City of Brawley Wastewater Treatment Plant Upgrading Project employing Biolac process (Construction Cost \$25 million)
2. Project Manager, City of Coachella Avenue 54 Wastewater Treatment Plant Upgrading (Construction Cost \$5.5 million)
3. Assistant Project Manager & Lead Process Engineer & Project Engineer, City of Holtville Wastewater Treatment Plant Upgrading Project employing Biolac process (Construction Cost \$11.5 million)
4. Project Manager for Various Plant Upgrading Projects at Regional Wastewater Treatment Plant for South Orange County Wastewater Authority, Dana Point

PROJECT
TEAM



M. Steve Ro, PE/Principal-In-Charge

M. Steve Ro, the firm's founding partner, has over 35 years of municipal water and wastewater systems engineering experience, including conveyance, treatment, reclamation, and reuse systems. He has served as lead design engineer, project engineer, project manager, project director, construction manager, and QA/QC officer on many treatment plant capital improvement projects with construction costs ranging from \$1 million to \$75 million. He is an effective project manager with multidiscipline engineering skills (treatment process, hydraulics, mechanical, electrical, instrumentation & controls, and structural), and has extensive project management, planning, design, value engineering, and construction management experience for a wide variety of municipal clients.



Sam Lee, PE/Project Engineer

Sam Lee has over 13 years of diversified civil, sanitary, mechanical and process engineering and design experience with water and wastewater infrastructure engineering projects. Sam was the project engineer & lead design engineer for our City of Holtville WWTP Upgrading Project. His experience includes facility investigation and evaluation, analysis and design, and construction phase engineering services for wastewater and water treatment plants, booster pump stations and lift stations, force mains and other water and wastewater conveyance and collection systems. Through a wide variety of water infrastructure engineering projects, Sam has acquired diverse design and discipline coordination skills. His recent experience includes detailed condition assessment of water and wastewater treatment plants.



Rick Liskow, PMP/Construction Support Lead

Rick Liskow has 25 years of experience in the engineering and design of municipal water and wastewater facilities, pump stations, and emergency power generation system supporting treatment plants and pump stations. As a certified PMP, Rick has served as project manager and project engineer on numerous water, wastewater, and water reclamation facility projects for municipalities and water agencies. Rick has extensive design management experience through coordination of various engineering disciplines – civil, mechanical, piping, electrical, and instrumentation and controls (I&C) engineering. He also provided engineering services (during construction) for many plant and pump station projects - shop drawing/equipment submittal review, response to RFIs, construction coordination, change order reviews and project documentation. Rick was the lead engineer during the construction phase for the City of Holtville WWTP Upgrading Project.



Kevin Kennedy, PE/Technical Advisor

Kevin Kennedy has over 23 years of comprehensive wastewater treatment planning, design, regulatory compliance, engineering services during construction and project management experience. As described below, he has extensive experience in wastewater treatment plant design and quality assurance / quality control. Specific responsibilities included managing the coordination, review and logistics of 25 separate projects along with multiple repair and replacement improvements to help minimize disruptions and maintain continuous operation and regulatory compliance. Kevin also served as program manager/extension of staff for Napa Sanitation District's wastewater treatment plant master plan. Kevin is capable and available to fully support the City, deliver successful projects and can serve as extension of staff if desired.



Lee Badertscher, PE/Technical Advisor - Electrical and I&C

Lee Badertscher has over 30 years of engineering, design, and construction experience with water & wastewater treatment plants, pumping stations and pipelines. Lee is a California professional engineer registered in three separate engineering disciplines - "Civil", "Electrical" and "Control Systems." He has successfully completed multiple roles as project manager, QA/QC lead, mechanical/ electrical/ I&C engineer, and construction manager. Lee has managed design and construction of new plant facilities involving pumps, blowers & compressors, clarifier equipment, emergency generators, sludge pumping and dewatering equipment, anaerobic digesters, digester gas management, and associated structural components and piping. As electrical and I&C engineer, typical assignments included development of power distribution and lighting, P&IDs, SCADA, process control strategies, loop/logic/control diagrams, PLC wiring, and instrument databases. Lee also has considerable treatment plant start-up and commissioning experience.



PROJECT
TEAM



Sal Calderon, PE/Technical Advisor – Mechanical

Salvador Calderon is a California licensed mechanical engineer with over 30 years of diversified mechanical, pumping systems, and process engineering experience covering a wide variety of public works projects. As project manager, he has managed the design and construction for large pump stations, water & wastewater treatment plants, methane gas-fueled energy recovery systems (cogeneration), water and oil transmission pipelines, landfill gas collection systems, underground storage tanks, fuel distribution systems, and seismic retrofit and rehabilitation of concrete storage reservoirs.



James Jetton, PE/Process & Mechanical

James Jetton has over 25 years of experience in engineering, design and construction of water and wastewater treatment facilities. James is experienced in all stages of project execution from planning and design through construction and start-up. His engineering experience covers most of the wastewater unit processes including headworks, primary & secondary clarifiers, activated sludge, disinfection, sludge dewatering and odor control. His experience has been particularly focused on rehabilitation and replacement type projects where practical as well as innovative approaches are often required to reduce construction costs and maximize the value of existing facilities. James has valuable experience with restoration of treatment plant concrete and steel structures damaged by hydrogen sulfide corrosion. He has worked with plant operations and maintenance staff and executed upgrades and retrofits of the process units that must remain online and in compliance with the regulatory requirements during construction.



James Pollock, PE/Process & Mechanical

James Pollock has 16 years of experience in project management, planning, design, and construction support of municipal pumping and treatment facilities. James' passion is for hydraulics having designed pumping facilities ranging in size from 1,000 gpm to over 500 mgd. James has also managed many rehabilitation and expansion projects and is skilled at recognizing potential construction issues and how to minimize operational disruptions during construction. James is a seasoned designer with expertise in preparing contract drawings, technical specifications and technical reports. James' experience includes multiple projects where he served both as project manager in planning and design and later as the client's resident engineer and representative in construction, giving him perspective to manage a project from start to finish affording insight to constructability, cost effective methods of construction and pitfalls that can be avoided by through planning and design.



Sung Choi, PE/Mechanical / Pump Stations / Emergency Power

Sung Choi has over 13 years of planning, engineering, design, and construction experience with water and wastewater treatment plants, pump stations, emergency generators, force mains, piping and pipelines, and civil & site improvements. His experience also includes condition assessment, system hydraulic analysis, equipment and pump selection, development of pump system curves, equipment & piping layout and design coordination with other design disciplines including structural, electrical, I&C and architectural. He led several emergency generator design projects at water and wastewater pump stations (generator sizes from 250kW to 1,500kW) and was responsible for permit coordination with agencies such as SCAQMD and city building departments. Also, Sung has considerable experience with development of P&IDs and control strategies. Other experience includes construction cost estimating and construction support services including review of equipment submittals and shop drawings.



Amritendu Maji, PE/Civil and Site

Amritendu Maji is a Civil Engineer and Project Manager with over 20 years of progressive experience in the planning, design, construction administration of public works projects. He prepared plans and specifications, construction cost estimates, bid documents, and permit applications for raw water and treated water and stormwater conveyance and distribution facilities including: site grading, storm drains, pump stations and reservoirs, and stormwater and flood control facilities. He has considerable experience in hydraulics and hydraulic modeling. He also has considerable experience in the preparation of permits including the Federal Section 404 (Clean Water Act) for work in wetlands, Section 408 (Rivers and Harbors Act) for federally constructed structures like levees and floodwalls, and permits from the State Transportation and Development offices for work in and



PROJECT
TEAM

Amritendu Maji, PE/Civil and Site (continued)

around State and Federal Highways etc. He has provided construction administration and support services including conducting progress meetings, review of shop drawings, respond to RFIs, analysis & preparation of change orders, start-up & commissioning and review & approval of contractors' pay requests and project closeout.



Murthy Kadiyala, PE, PLS/Civil and Site

As a licensed professional engineer and professional land surveyor, Murthy Kadiyala has over 15 years of municipal civil and infrastructure engineering, design, and construction experience in water and wastewater conveyance systems including storage tanks and pump stations. Murthy has extensive experience with hydraulics and hydrology and modeling expertise with H2ONet, InfoWater, WaterCAD, SewerCAD, and ArcGIS. He also has high level skills in AutoCAD Civil 3D, TerraModel and MicroStation applications. Murthy is a licensed surveyor with experience in property boundary legal analysis and land surveying, both in the field and office. Murthy has engineered water and wastewater conveyance projects which require extensive permitting, right-of-way acquisition and analysis, traffic & noise mitigation, and public relations. Murthy has engineering experience with trenchless construction including micro-tunneling and jack and bore.



James Gingrich, SE/Structural

James Gingrich is a California registered structural engineer with more than 25 years of structural analysis, engineering, design, constructability analysis, value engineering, project coordination and construction management experience. He has been the structural project manager, QA/QC reviewer, and lead structural engineer for planning, investigation and condition assessment, preparation of preliminary & final design, seismic analysis and upgrading, and construction phase engineering services for a wide variety of concrete and steel structures for water conveyance and pumping facilities, water storage, treatment and distribution facility projects. His experience and expertise include rehabilitation & retrofit engineering & designs for existing facilities. His representative experience includes lead designer for the Lake Matthew Outlet Facilities, Colorado River Aqueduct Pumping Plant Seismic Upgrades, and Oxidation Retrofit (Ozone Disinfection) Projects for MWD's Mills, Jensen, Weymouth, Skinner, and Diemer Water Treatment Plants for the Metropolitan Water District of So. Ca.



Robert Mercado, PE, PACP, QSD/QSP/Civil

Robert has over 18 years of engineering, construction management (CM), and resident engineer/construction inspector (RE/CI) experience. In the role of RE/CI, he has successfully completed numerous, pump station, treatment plant, and pipeline projects for public agencies throughout Southern California including the West Basin Municipal Water District, City of Burbank, City of Long Beach and Castaic Lake Water Agencies. His CM services experience and responsibilities include construction and schedule coordination, quality control, owner representation, field documentation, progress payment reviews, facility startups, and permit coordination. Project experience includes rehabilitation of various mechanical systems, sewers and storm drains, and water and recycled water transmission mains and associated street traffic signal repairs and paving restoration.



Michael Assadourian, PE/Lead Electrical and I&C

Michael Assadourian has over 25 years of experience with electrical and control systems engineering, design, construction and project management for water and wastewater treatment plants, pump stations, water conveyance facilities, petrochemical plants, refineries, chemical munitions disposal facilities, and transportation facilities. He has experience in Medium and Low Voltage power distribution, grounding, and lighting systems, both NEMA and IEC standards based; motor controls and variable frequency drives; coordination with power companies such as the Southern California Edison; and SCADA, CCTV, and radio/microwave systems. His work experience includes P&ID development, electrical system condition assessment, ETAP analysis, load flow and short-circuit analysis, and protective device coordination studies.



PROJECT
TEAM



Shawn Hillers, PE/Electrical and I&C

Shawn Hillers' experience includes 15 years working in the electrical field with 8 years as a licensed Professional Engineer. Shawn has functioned as lead electrical engineer on numerous water infrastructure projects covering electrical, instrumentation & control (I&C) system design and construction. Engineering and construction experience include medium and low voltage electrical distribution including switchgear and motor controls, variable frequency drives (VFDs), communication and security alarm systems, process I&C and SCADA, standby & emergency power generation, interior and exterior lighting, area & roadway lighting, and fire alarm systems. His experience also includes 7 years of experience as a transmission, protection and control (P&C), and substation engineer. Areas of practice included water and wastewater treatment plants, water and wastewater pump stations, water reuse facilities, storm water pump stations, seepage water pump stations, operation and maintenance complexes, flow control structures, and industrial/commercial buildings.

Specialty Subconsultants

Landmark Consultants/Geotechnical

Landmark Consultants, Inc. is a consulting firm providing Geotechnical and construction materials testing services in the Imperial, Riverside, San Bernardino, and San Diego County areas. The firm's practice began in 1987 in El Centro, California with staff operating together since 1982, rapidly earning the reputation for high quality, cost effective, and responsive technical and professional service. Since that time, the firm has expanded to include a branch office located in Palm Desert, California. Landmark performed geotechnical engineering services for LEE & RO on many projects

The Prizm Group/Survey & Mapping

The Prizm Group (TPG) is owned and operated by Vincent Kleppe, who has been a Licensed Land Surveyor and registered Civil Engineer for over 20 years. The dual licensure of the principal has allowed TPG to provide services in both disciplines which has resulted in a thorough understanding of the need for complete and accurate field surveys. Their survey equipment repertoire includes robotic total stations, RTK, GPS equipment, and Leica HDS 3D laser scanners. TPG is a regular surveying subconsultant on LEE & RO projects.

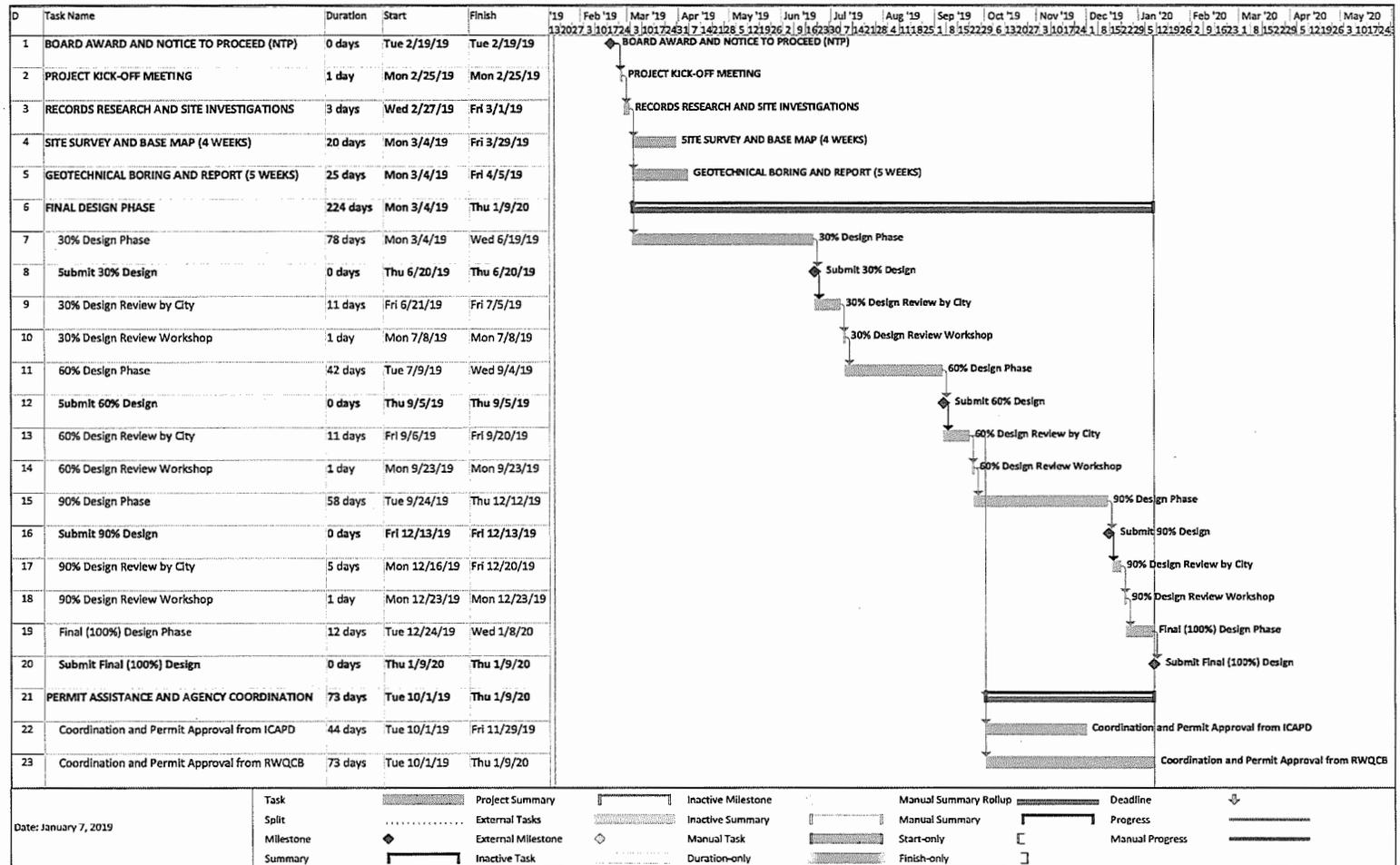


Exhibit 6-1 Project Schedule

Section 6
PROJECT
SCHEDULE

LEE & RO assumes the City will issue the Notice to Proceed on February 19, 2019. LEE & RO also assumes the City's review time will be two (2) weeks for each submittal.

LEE & RO will submit the Final (100%) design documents to the City on January 9, 2020.



Section 7: CONFLICT OF INTEREST

LEE & RO confirms that no personal or organizational conflicts of interest prohibited by law exist that would affect or impact this project.

Section 8: INSURANCE COVERAGE

LEE & RO meets or exceeds the City's insurance requirements specified in the RFP. The insurance coverage amounts, and carriers are summarized below:

Type	Carrier	Eff. Date	Exp. Date	Per Occurrence	Aggregate	Policy No.
Commercial General	Sentinel Insurance Co.	11/01/2018	11/01/2019	\$1,000,000	\$2,000,000	2018WAG2776
Automobile	Hartford Insurance Co.	11/01/2018	11/01/2019	\$1,000,000	\$1,000,000	2018EG246000
Workers Comp	Hartford Insurance Co.	11/01/2018	11/01/2019	\$1,000,000	Each	2018WB40000V
Umbrella	Sentinel Insurance Co.	11/01/2018	11/01/2019	\$5,000,000	\$5,000,000	2018WAG2776
Professional Liability	ACE American Insurance Co.	10/17/2018	10/17/2019	\$1,000,000	\$1,000,000	025850831006

Section 9: CONTRACT

LEE & RO has reviewed the City's professional services agreement included as Attachment A to the RFP. We take no exceptions to the agreement.





MICHAEL ASSADOURIAN, PE

Electrical Engineer

Michael Assadourian has over 25 years of experience with electrical and control systems engineering, design, construction and project management for water and wastewater treatment plants, pump stations, water conveyance facilities, petrochemical plants, refineries, chemical munitions disposal facilities, and transportation facilities. He has experience in Medium and Low Voltage power distribution, grounding, and lighting systems, both NEMA and IEC standards based; motor controls and variable frequency drives; coordination with power companies such as the Southern California Edison; and SCADA, CCTV, and radio/microwave systems. His work experience includes P&ID development, electrical system condition assessment, ETAP analysis, load flow and short-circuit analysis, and protective device coordination studies.

Representative Project Experience

2016-17 and 2017-18 Reservoir Management Systems Replacement Projects, Moulton Niguel Water District, Laguna Niguel. Project Electrical and Controls Engineer for two RMS replacement projects. The project objectives include conversion of onsite hypochlorite generation systems to 12.5% bulk liquid sodium hypochlorite and 19% ammonia for chloramine disinfection at eight domestic water reservoir sites in the MNWD service area. Each disinfection facility contains new bulk sodium hypochlorite and ammonia storage and feeding systems and includes a new masonry block chemical storage building with separate rooms for each chemical, ventilation and split system AC units for the chemical rooms, storage tanks, chemical pumps and piping, reservoir mixers, analyzers and dosage control, chemical leak detection systems, sample and drain piping, electrical, process monitoring and control via SCADA, shower/eyewash stations, and site utilities. Several of the reservoir sites require temporary power during construction to maintain operation of the existing disinfection facility.

Electrical Improvements and Addition of Standby Generator, Water Reclamation Plant No. 10 (WRP 10), Coachella Valley Water District, Palm Desert. Electrical Engineer for addition of a 1,750 kW standby generator; installation of 2,000A circuit breakers in the blower building; installation of a new Switchgear M1-B complete with new ATS; eliminate the three motor circuit breakers and motor feeder circuits from M-1 to the blower building; and addition of utility feeder circuits from Switchgear M-1 to new M-1B using newly installed conduits and pull boxes to power three new 540-hp aeration blowers on utility power. The total construction cost was \$2.5 million.

Water and Sewer Facilities Electrical System Assessment and Well Facility Backup Power Design and Construction Management Project, Ontario Municipal Utilities Company, Ontario. Electrical Engineer responsible for electrical assessment, short circuit & protective device coordination study, and arc flash hazard analysis for the 32 City facilities that included 24 groundwater production wells, 5 booster pump stations/storage facilities, and 3 sewer lift stations. The studies verified that the protective device coordination was optimized, minimizing arc energy during a fault condition, maximizing system reliability and continuity of operation. The scope of services also included a backup power evaluation & assessment report for eighteen water well facilities and three booster stations. Developed design documents to procure a mobile generator and modify facilities at four sites to enable generator hook ups to run facilities during power outage conditions.

Miramar Pump Station Rehabilitation and Upgrading Project, San Diego County Water Authority, San Diego. Electrical Engineer for construction phase of a \$4.1 million upgrading of an 80 cfs capacity potable water pump station delivering water from the Miramar Water Treatment Plant to member agencies. The pump station is equipped with two vertical turbine pumps (400 and 800 hp) and one 1,000 hp horizontal split case pump. The project includes replacement of pumps, replacement of existing 2.3 kV electrical equipment with 4.16 kV system, and automatic pump controls, and SCADA integration. Reviewed contractor submittals and RFIs, made site visits and attended construction meetings, and reviewed compliance with NEC and fire code compliance.

Registration

Professional Electrical
Engineer, California No.
E14390

Education

M.S., Industrial and Systems
Engineering & Management,
University of Southern
California
B.S., Electrical Engineering,
University of Southern
California

**MICHAEL
ASSADOURIAN, PE**
Electrical Engineer
(continued)

Hyperion Secondary Effluent Pumping Station (HSEPS) Expansion Project, Hyperion Treatment Plant (HTP), West Basin Municipal Water District (WBMWD), Carson. Electrical Engineer for a \$14.7 million capacity expansion project (from 70 to 90 mgd) including a connection of 60" secondary effluent supply piping to the pressurized HTP's secondary effluent channel (wet tapping) and addition of two new 20 MGD pumps (190 feet of TDH), each driven by 800 HP, 4,160V motor and VFD. Work includes CFD modeling of pump intake system to satisfy the Hydraulic Institute's requirements; construction of a 40 feet deep vertical structure in a tight site for installation of the additional vertical turbine pumps; mitigation of construction impact at the El Segundo Water Recycling Plant and HTP (minimum shutdown period); connection of 48" pump effluent header to the existing 60-inch Pressure Main in Vista Del Mar; and addition of a 3,000 kW emergency generator with a fuel storage system.

Reclamation Plant 5 (RP-5) Flow Equalization and Effluent Monitoring Project, Inland Empire Utilities Agency, Chino. Electrical Engineer for various hydraulic improvements at a plant that produces 10 mgd of Title 22 recycled water. The project was comprised of several components including use of recycled water to match the capacity of the Recycled Water Pump Station by implementing an automated system that will bypass peak flows into the equalization basin, providing a new flow metering system at the inlet of the chlorine contact basin to better control chemical usage and allow for more accurate dosing of chlorine, replacement of the sodium hypochlorite pumping system and a redesign of the existing sodium bisulfite pumps, and a shade structure to cover the sodium bisulfite pumps.

Collection System Pumping Plants Rehabilitation and Generator Replacement Project (TOS 21 CIP 7181, 7182, 7183, 7186), Bureau of Engineering, City of Los Angeles. Lead Electrical Engineer during construction for the rehabilitation of four City of Los Angeles pumping plants located in Terminal Island. This \$6.9 million includes the removal and replacement of the existing pumps, suction and discharge piping and valves, VFDs, emergency generators, and ATS. All existing generators are being replaced with Tier 4 Compliant generators. During the pre-design phase of this project, performed an extensive condition assessment which also identified several other areas within each pumping plant in need of modifications, such as ventilation systems, wet well corrosion, structural defects, and NFPA electrical code violations.

Wastewater Pumping Plant Emergency Generator Replacement Project (TOS 44), Bureau of Engineering, City of Los Angeles. Electrical Engineer for engineering and design for replacement of 10 emergency generators and automatic transfer switches (ATS) at 8 pumping plants (PP624, 632, 638, 648, 654, 616, and North & West Yards). The generator size varies from 100 to 800 kW. The Ballona Creek Pumping Plant (PP654) is equipped with two 800 kW generators. Total estimated construction cost is \$5 million. PP654 has two skid-mounted generators inside building which will be replaced with associated cabling interface, ATSs, load banks, batteries, and fuel systems. The PP654 cooling system is on the building roof that must be removed after disassembly and the placement of the new generators components.

Automatic Transfer Switch (ATS) Replacement, J. B. Latham Treatment Plant, South Orange County Wastewater Authority, Dana Point. Electrical Engineer for assessment and design of ATS that did not meet the arc flash maintenance boundaries – regular ATS inspection and testing cannot be performed without internally accessing the ATS where 480 VAC 3 PH bus bars are extended from the main service to the metering section. Performed field investigation and designed new ATS system equipped with external controls and testing capabilities.

Radial Gate Refurbishment Project, Colorado River Aqueduct (CRA) Replacement Project, Metropolitan Water District of So. Ca. Electrical and Controls Engineer for final design for a \$7 million project refurbishing eight large motor driven, hydraulic radial gates along the CRA. The gates were installed during the original CRA construction in the late 1930s and have been in operation since the CRA was commissioned into service in 1941. The gate inspection performed in 2003 and 2011 revealed various stages of deterioration. Scope of services includes field investigation and a condition assessment of the gates including electrical power supply, motor operators, wiring, safety and control systems developing and designing rehabilitation plan for each gate and supporting structures and appurtenances.





Registrations

Civil Engineer,
California #C43789;
Utah #43789

Control Systems Engineer,
California, #16482

Electrical Engineer,
California #E19641

Education

B.S., Civil Engineering,
Utah State University

LEE BADERTSCHER, PE

Technical Advisor - Electrical and I&C

Lee Badertscher has over 30 years of engineering, design, and construction experience with water & wastewater treatment plants, pumping stations and pipelines. Lee is a California professional engineer registered in three separate engineering disciplines - "Civil", "Electrical" and "Control Systems." He has successfully completed multiple roles as project manager, QA/QC lead, civil/mechanical/ electrical/ instrumentation and control systems (I&C) engineer, and construction manager. Lee has extensive engineering and construction experience with rehabilitation and replacement of treatment plant equipment, mechanical systems including piping and valves, deteriorated concrete, corroded piping, and outdated electrical systems and control systems. In addition, Lee has managed design and construction of new plant facilities involving pumps, blowers & compressors, clarifier equipment, emergency generators, sludge pumping and dewatering equipment, anaerobic digesters, digester gas management, and associated structural components and piping. As electrical and I&C engineer, typical assignments included development of power distribution and lighting, P&IDs, SCADA, process control strategies, loop/logic/control diagrams, PLC wiring, and instrument databases. Lee also has considerable treatment plant start-up and commissioning experience.

Representative Project Experience

Headworks and Grit System Improvement Project, Point Loma Wastewater Treatment Plant (PLWTP), City of San Diego (2002-2014). Project Manager for a \$21 million Headworks & Grit System Improvement project at the 240 mgd PLWTP. The project included field-testing of the existing headworks to optimize flow distribution, to develop a reliable hydraulic profile, and to determine the most-efficient grit tank cross-sectional dimension configuration. The project includes reconfiguration & reconstruction of the south aerated grit tanks, a new two-story grit dewatering building with grit storage bins, facility ventilation upgrades, and odor control scrubber modification. Due to heavy & deep concrete structure retrofit work in the extremely congested project site, an extensive constructability analyses were performed during design.

Wastewater Treatment Plant Expansion and Improvements, Valley Sanitary District, Indio. Design Manager responsible for preparation of plans and specifications for a \$44 million plant expansion and improvements projects that is being implemented in two phases. Phase 1 increased the activated sludge plant capacity from 5 to 10 mgd (including the 3.5 mgd capacity of the constructed wetlands and aeration ponds, the total plant capacity will be 13.5 mgd). Phase 1 included three new 200 hp aeration blowers, secondary clarifiers, chlorine contact tanks, and sludge dewatering belt presses. Phase 2 facilities include primary treatment, anaerobic digestion, and sludge dewatering.

Hyperion Secondary Effluent Pumping Station (HSEPS) Expansion Project, Hyperion Treatment Plant (HTP), West Basin Municipal Water District (WBMWD), Carson. Project Manager for \$14.7 million capacity expansion project (from 70 to 90 mgd) including a connection of 60" secondary effluent supply pipe to the pressurized HTP's secondary effluent channel (wet tapping) and addition of two new 20 MGD pumps (190 feet of TDH), each driven by 800 HP, 4,160V motor and VFD. Work includes CFD modeling of pump intake system to satisfy the Hydraulic Institute's requirements; construction of a 40 feet deep vertical structure in a tight site for installation of the additional vertical turbine pumps; mitigation of construction impact at the El Segundo Water Recycling Plant and HTP (minimum shutdown period); connection of 48" pump effluent header to the Existing 60-inch Pressure Main in Vista Del Mar, a busy highway; and addition of a 3,000 kW emergency generator with a fuel storage system.



LEE
BADERTSCHER, PE
Technical Advisor -
Electrical and I&C
(continued)

Solids Handling Facility Improvements, Water Reclamation Plant No. 2 (RP-2), Inland Empire Utilities Agency, Chino, CA. Project Manager for a \$5 million project for improvements to two dissolved air flotation (DAF) WAS thickeners and two primary sludge gravity thickeners (replacement of sludge collectors, scum handling, automation and maintenance items); modifications to sidestream processing facilities (filtrate, centrate and WAS pump replacement); automation of centrifuge operation and installation of additional cake conveyors; replacement of reject stream pump station; improvements piping and controls to the thickened WAS and primary sludge feed to digesters; and improvements to the dewatered cake storage hoppers and truck loading system.

Secondary Treatment Process Upgrading, Wastewater Treatment Plant No. 2, Orange County Sanitation District. Project Manager for \$7 million improvements to pure oxygen secondary activated sludge treatment process. Project included improvements to oxygen feeding and sampling, WAS/RAS pump control upgrades, addition or replacement of variable frequency drives (VFDs), influent (primary effluent) pump station control upgrades, and various safety system improvements. Lee developed control strategies, P&IDs, SCADA network, communication links, electrical schematics, data concentrators and control and instrument loop drawings, and PLCs.

Anaerobic Digester Renovation and Improvements at Treatment Plant No. 2, Huntington Beach, Orange County Sanitation District. Project Manager for an \$11 million anaerobic digester upgrading and rehabilitation project at the 200 mgd Plant 2, which included extensive sludge and gas piping modifications, structural rehabilitation, replacement of digester mixing systems, various NFPA 820 safety improvements, and electrical and control upgrading. The project automated sludge feeding and provided centralized and local control of the primary sludge and thickened waste-activated sludge feeding, digester mixing, sludge heat exchangers, and ferric chloride injection.

Odor Control Scrubber Modification, Wastewater Treatment Plants No. 1 and No. 2, Orange County Sanitation District. Project Manager for \$4 million design modifications (for controls, electrical, and chemical feeds) for twenty-one (21) odor control chemical scrubbers at two wastewater plants. Project also included installation of state-of-the-art ATI chlorine and Vapex hydrogen sulfide detectors for accurate chemical dosage control and scrubber efficiency monitoring.

Diemer and Weymouth Water Treatment Plants Sludge Thickening and Dewatering Facilities, Metropolitan Water District of Southern California (2003-2007). Lee served as Project Electrical and Instrumentation Design and Construction Manager for two new sludge thickening and dewatering facilities at 500 mgd Diemer and 600 mgd Weymouth Filtration Plants (construction cost for both facilities at \$28 million). Each facility includes gravity thickeners, bottom sludge pumps, belt presses, solid cake pumps, conveyors and hoppers, polymer feed, and electrical and instrumentation.

Mills Water Treatment Plant, Chemical Systems Upgrades, Modules 1 & 2 Rehabilitation and Single Point Injection Facility Upgrades, Metropolitan Water District of Southern California. QA/QC Reviewer for conceptual studies, preliminary design and final design for a chemical system upgrade project, Modules 1 & 2 rehabilitation project and the single point injection project to enable the Mills plant to operate at 326 MGD capacity. The chemical systems include new feed pumps and feed pump controls and control valves for injection of chemicals ahead of the modules or filters. Modules 1 & 2 were inactive for number of years and required complete new instrumentation and controls. The single point injection enhances operational flexibility and reduces O&M costs.



SALVADOR CALDERON, PE

Technical Advisor- QA/QC (Mechanical)

Salvador Calderon is a California licensed mechanical engineer with over 35 years of diversified civil and mechanical systems engineering experience with a wide variety of public works projects. Sal managed the design and construction of trunk sewer and force main slip-lining projects, water and wastewater pump stations, water and oil transmission pipelines, water & wastewater treatment plants, emergency generators, chiller plants, and thermal storage systems. Sal has extensive construction and construction management experience and has dealt with deep excavation and dewatering, silent-piling, foundation stabilization, trenchless construction, and heavy mechanical equipment installation requiring extensive coordination with electrical and control systems. He also has extensive start-up and commissioning of large construction projects. His credentials in both engineering and heavy construction made Sal a competent project manager and technical advisor a wide variety of water infrastructure projects

Registration

Professional Mechanical Engineer, CA # M019623; AZ #28306

Education/Training

B.S., Mechanical Engineering, University of Santo Thomas, Magna Cum Laude

Representative Project Experience

Three Wastewater Pump Stations (Bitter Point, 14th Street and A Street Pump Stations), Orange County Sanitation District. Project Manager for the planning, preliminary & final design and construction phase engineering services for three pump stations with an aggregate construction cost of \$34 million. The project sites were in the City of Newport Beach. Major project challenges included hydraulics, tight sites with deep underground construction, liquefaction potential near tidal zone, and architectural blending of station structures with affluent community setting, and regulatory coordination with Caltrans, the California Coastal Commission, and City of Newport Beach. The projects included environmental documentation, dry and wet weather flow measurements, preparation of preliminary design reports, preparation of drawings and specifications, and construction support services. The pumping station capacities range from 800 gpm (A Street), 2,000 gpm (14th Street) and 25,000 gpm (Bitter Point) and all pumps are driven through variable frequency drives.

Rehabilitation of 36-inch Bitter Point Force Main, Newport Beach, Orange County Sanitation District. Project Manager for study of various rehabilitation methods and design of HDPE liners for 36- and 42-inch diameter, 5,000 linear feet of ductile iron sewage force mains and rehabilitation of manholes. This \$2 million project, located in the City of Newport Beach along the Pacific Coast Highway, required extensive coordination with various agencies. Other projects included placement of a new sewer force main lateral to redirect flow and replace an existing sewer line and new sewer manhole installations.

Hyperion Secondary Effluent Pumping Station (HSEPS) Expansion Project, Hyperion Treatment Plant (HTP), West Basin Municipal Water District (WBMWD), Carson. Project Manager for \$11 million pumping capacity expansion project (from 70 to 90 mgd) including a connection of 60-inch secondary effluent supply pipe to the pressurized HTP's secondary effluent channel (wet tapping) and addition of two new 20 MGD pumps (190 feet of TDH), each driven by 800 HP, 4,160V motor and VFD. Work includes CFD modeling of pump intake system to satisfy the Hydraulic Institute's requirements; construction of a 40 feet deep vertical structure in a tight site for installation of the additional vertical turbine pumps; mitigation of construction impact at the El Segundo Water Recycling Plant and HTP (minimum shutdown period); connection of 48" pump effluent header to the Existing 60-inch Pressure Main in Vista Del Mar, a busy highway; and addition of a 3,000 kW emergency generator with a fuel storage system.

Metro Pumping Station No. 2 Modification and Improvement Projects, City of San Diego. Project Manager for design and construction of (1) installation of 2,250 hp, 52 mgd capacity, motor-driven pump and (2) replacement of two (2) 2,250 hp motor drives with two (2) new 2,750 hp clean-burn caterpillar natural gas engine drives. This project improves reliability and protects from excessive hydraulic surge in the event of power failure. The design includes a natural gas supply system; heat exchangers using influent wastewater; noise abatement; backup diesel fuel system; continuous emission monitoring and engine control system; and right-angle drives with special clutching to accommodate pump reverse rotation.



SALVADOR CALDERON, PE
Technical Advisor-
QA/QC (Mechanical)
(continued)

La Jolla Trunk Sewers, Force Mains and Pump Station, City of San Diego. Technical Advisor for a collection system engineering project that combined three old wastewater pump stations (PS 28, 29, and 45) into new one station (PS45) serving the City of La Jolla, UC San Diego and Torrey Pines areas. The PDR was prepared for ten project alternatives comparing one single pump station with two pump stations while utilizing various gravity trunk sewer and force main configurations and alignments. The final project included 10,000 feet of 24-inch diameter VCP trunk sewers to divert flow to the new pump station and HDPE force mains and new interconnecting trunk sewers. The project was located in an exclusive and environmentally sensitive area near the Pacific Ocean, extensive permit coordination was performed. To minimize environmental as well as construction impacts, 1,500 feet of trunk sewers were constructed using micro-tunneling.

Sand Canyon Pump Station Pump Station (SCPS) Reliability Upgrades, Castaic Lake Water Agency. Project Manager for a fatal flaw/reliability analysis and final design of an emergency power generation facility. SCPS, built in 2006, has six 900 hp vertical turbine pumps. An in-depth reliability engineering analysis recommended a 1,750-kW standby generator cooled by the product water. The \$4.5 million project constructed included architectural, landscaping, structural, mechanical/electrical/plumbing (MEP), security and communications, and civil/paving/grading design elements.

San Vicente Booster Pump Station Upgrading Project, City of Santa Monica. Project Manager for \$2.5 million upgrading of an underground pumping station below 25th Street in a quiet and affluent neighborhood. The station services the 5-million-gallon capacity concrete reservoir under the median along the San Vicente Boulevard. The 7,500 gpm capacity pump station is equipped with six pumps of varied sizes (four 150 hp and two 40 hp sizes). The City plans to expand use of this station, and this project upgrades the mechanical and electrical system reliability and provides a new 750 kW emergency generator.

Earl Schmidt Intake Pump Station Settlement Investigation and Corrective Action, Castaic Lake Water Agency. Project Manager for a corrective action. The station has six 500 pumps. In less than a year of operation after construction, a leak was discovered on the 54-inch pump discharge manifold. Additionally, due to excessive vibration and settlement of discharge header, the pump bearings kept failing. The Agency removed the pumps from service. Investigation revealed that defective construction created differential settlement which, in turn, resulted in the pumps and discharge headers being badly misaligned. This \$1.2 million corrective action project included reconstruction of the buried pump header and reinstallation of individual pump discharges to the header with flexible couplings.

Newhope-Placentia Trunk Sewer Replacement Project, Orange County Sanitation District. Project Manager for planning, design, and construction support services for an \$75 million trunk sewer replacement project. Scope of work includes hydraulic modeling, extensive geotechnical and underground utilities engineering, permitting, easement acquisition, and public outreach. The project includes new wastewater trunk sewers through the Cities of Fullerton and Anaheim to upsize and replace the existing 55-year-old sewer. The new replacement sewer is 38,300 feet long, located in State College Blvd., varying from 36-inch to 54-inch in diameter. The new sewer will provide flow diversion from Treatment Plant No. 2 to Plant No. 1 for additional water recycling. The project includes trenchless construction to cross railroads, Fwy 91, Craig Regional Park, and several major east-west thoroughfares. The project also involves many stakeholders including cities of Fullerton and Anaheim, Caltrans, Cal State Fullerton, and Anaheim Stadium.

Pedersen Reservoir Seismic Upgrade and Rehabilitation, City of Thousand Oaks. Project Manager for the condition assessment, seismic evaluation and structural rehabilitation of the 3 MG capacity partially buried concrete reservoir. The seismic evaluation identified structural deficiencies that must be addressed to meet the current seismic loads requirements under the 2010 California Building Code. The condition assessment concluded that the existing structure, with strategic modifications and retrofits, is still capable of providing service for another 25 years with proper maintenance and periodic inspections. The \$1 million project designed and constructed included seismic reinforcing of the columns & joints.



SUNG CHOI, PE

Process & Mechanical

Sung Choi has over 12 years of planning, engineering, design, and construction experience with water and wastewater pump stations, emergency generators, force mains, water distribution pipelines, and civil & site improvements. His experience also includes pump station condition assessment, system hydraulic analysis, development of system curves and pump selection, pump layout, pump station mechanical system & piping design, and coordination with other design disciplines including structural, electrical, I&C and architectural. Sung Choi has led several emergency generator design projects for the water and wastewater pump stations (generator sizes from 250 to 1,500KW) and was responsible for permit coordination with agencies such as SCAQMD and city building departments. Sung has considerable experience with pumping system P&ID development and pump control systems including surge control. Other experience includes construction cost estimating and construction support services including review of equipment submittals and shop drawings.

Registrations

Civil Engineer, CA #C83210

Education

MS, Civil Engineering
Specialized Environmental
Engineering, California State
University, Fullerton

BS, Civil Engineering
Specialized in Environmental
Engineering, Ohio State
University

Representative Project Experience

Rehabilitation of Four Wastewater Pumping Plants and Emergency Generators, Department of Public Works, City of Los Angeles Project Engineer for a \$6.5 million pumping plant upgrade and emergency generator replacement project. His responsibility included condition assessment, a preliminary design report, final design, construction support services, and permit coordination with SCAQMD and City's Building and Safety Department. The four sewer pumping plants range in size from 5,800 to 18,000 gpm capacity. Each of the pumping plants require replacement of dry pit submersible pumps, suction and discharge isolation gate valves, pump discharge check valves, pump suction and discharge piping, variable frequency drives (VFDs), and emergency generators and automatic transfer switches (ATSs). All pumps and piping were replaced and upgraded. Sewer bypassing is a major component of the project construction.

Five Collection System Pumping Plant Generator Replacement Projects, Department of Public Works, City of Los Angeles. Project Mechanical Engineer for design replacement of emergency generators at 5 pumping plants (Manchester, Dacotah, Harris Place, Murdock & I street, and 190th & Vermont) to improve the reliability and efficiency of the wastewater collection system. This project is also to provide regulatory compliance with the Emissions Standards. Responsible for mechanical design for the generator replacements at the Manchester (750 kW) and Dacotah (500 kW) pumping plants. The design included external fuel tanks and piping, fuel monitoring systems, and a new ventilation system.

Beachwood Wastewater Pump Station Upgrades and Force Main Replacement, City of Burbank. Project Engineer for a \$9.5 million force main and pump station project. The existing pump station had a capacity of 5.9 mgd. The 12,000 feet long existing force main was 18-inch dia. cement mortar-lined-and-coated steel pipeline constructed in 1972. This project upsized the existing force main to a new 24-inch dia. HDPE pipe. The project included four trenchless crossings. Extensive public outreach, including a series of community meetings, was conducted because there was major community opposition to the existing alignment. The final alignment was through busy streets and is heavily congested with utilities (to avoid residential neighborhood). There were numerous stakeholders involved, such as MTA, Metrolink, MWD, and private property owners. The upgraded pump station, equipped with 3-150hp closed impeller pumps, has a capacity of 7.2 mgd.

San Vicente Booster Pump Station and Generator Upgrades, City of Santa Monica. Project Engineer and Lead Mechanical Engineer for a \$2 million pump station/emergency generator upgrade project. All facilities are situated underground along the median of San Vicente Blvd. in an affluent neighborhood. The 7,500 gpm capacity pump station is equipped with six pumps (four 150 hp and two 40 hp sizes). Pump 6 is equipped with a dual-drive (150 HP engine & 150 HP motor drive) serves as the emergency pump. This project was to upgrade and improve reliability by providing a new 750 kW emergency generator, also located below ground. Scope of services included obtaining generator permit from the SCAQMD and mitigating noise and emissions from the new larger generator. Project challenges included maintaining ground access to residents.



SUNG
CHOI, PE
Process &
Mechanical
(continued)

Hyperion Secondary Effluent Pumping Station (HSEPS) Expansion Project, Hyperion Treatment Plant (HTP), West Basin Municipal Water District (WBMWD), Carson. Project Engineer for \$11 million pumping capacity expansion project (from 70 to 90 mgd) including a connection of 60-inch secondary effluent supply pipe to the pressurized HTP's secondary effluent channel (wet tapping) and addition of two new 20 MGD pumps (190 feet of TDH), each driven by 800 HP, 4,160V motor and VFD. Work includes CFD modeling of pump intake system to satisfy the Hydraulic Institute's requirements; construction of a 40 feet deep vertical structure in a tight site for installation of the additional vertical turbine pumps; mitigation of construction impact at the El Segundo Water Recycling Plant and HTP (minimum shutdown period); connection of 48" pump effluent header to the Existing 60-inch Pressure Main in Vista Del Mar, a busy highway; and addition of a 3,000 kW emergency generator.

Trinidad Lift Station and Force Main Project, City of Huntington Beach. Project Engineer responsible for developing design documents for the demolition of the existing wet well/dry well and construction of a new lift including DI force main. The new station consists of two submersible recessed-impeller non-clog pumps which produce a total pumping capacity of 250 gpm at 55 feet TDH and an emergency generator. Pumps were installed in a newly constructed 20-foot deep, polyurethane lined, cast-in-place concrete wet well. The wet well was constructed below the groundwater table and shoring and dewatering were a major construction challenge. Also coordinate the project with the California Coastal Commission.

Del Avion Lift Station Emergency Generator Replacement Project, Moulton Niguel Water District, Laguna Hills, Laguna Hills. Project Mechanical Engineer for replacement of existing 1990 vintage Cummins 250 kW dual fuel (natural gas & propane) emergency generator. The project required new permits from the SCAQMD, Orange County Fire Authority and Orange County Environmental Health Department. A new generator and ATS and extensive building modification were required. Several sections of the electrical system MCC was also upgraded.

Santiago Hills II Zone 5 to 6 Domestic Water (DW) and Zone C+ to E Recycled Water (RW) Booster Pump Station Project, Irvine Ranch Water District (IRWD). Project Engineer for the addition of a \$2 million DW and a \$1.9 million RW pump station. DW station consists of three 60 HP pumps controlled via soft starters integrated into a dedicated domestic water 480V motor control center (MCC). RW pump station consists of four 75 HP pumps and two 10 HP jockey pumps controlled via variable frequency drives (VFD) integrated into a dedicated recycled water 480V MCC. A 200kW on-site emergency generator dedicated for the domestic water pumps was designed. The I&C design consists of incorporating the new programmable logic controller (PLC) into IRWD's existing supervisory control and data acquisition (SCADA) system.

East Zone A to B Booster Pump Station (BPS) Upgrade Project, Irvine Ranch Water District. Project Engineer for Pump Addition and Control System Modification Project. The existing BPS contains four Goulds pumps, and one spare pump can for a future pump. Each pump has a capacity of 2,000 gpm at a TDH of 201 feet. The pumps are housed in a 24-inch dia. pump barrel. The project was to install a 5th Goulds pump with the same capacity of 2,000 gpm at a TDH of 201 feet. Currently, two pumps are driven by soft-starters and the other two by VFDs. This project replaced two VFDs. The current PLC utilizes a combination of the original PLC (Modicon 984), and a later installed updated PLC (Modicon M340). All existing I/O is routed to the Modicon 984 that utilizes Ethernet to communicate to the Modicon M340. This project replaced Modicon 984 including, the light board, analog displays, and battery backup.

Filter Effluent Chlorination Project, Jensen Water Treatment Plant, Metropolitan Water District of So. Ca. Project Engineer for a chlorination system project. Project included five new 10,000 pounds/day chlorine ejectors, a new CMU building to house ejectors, associated piping, and electrical and controls. Process piping was extensively modified to route the chlorine gas to the ejector building. The project also included extending an existing 10-inch dia. water line to new ejectors; repurposing existing chlorine solution lines near Chemical Building 51/52 to facilitate redundant water supply to the new ejectors, including two 10-inch backflow preventers (in parallel). The design also provided for chlorine sensors within the galleries. The electrical system included separate 24v DC power for instrumentation as well as project trench and sump instrumentation. All lighting circuits and other relevant electrical elements were also designed to meet Title 24 requirements.



JAMES GINGRICH, SE

Structural Engineer

James Gingrich is a California registered structural engineer with more than 30 years of structural analysis, engineering, design, constructability analysis, value engineering, project coordination and construction management experience. He has been the structural project manager, QA/QC reviewer, and lead structural engineer for planning, investigation and condition assessment, preparation of preliminary & final design, seismic analysis and upgrading, and construction phase engineering services for a wide variety of concrete and steel structures for water conveyance and pumping facilities, water storage, treatment and distribution facility projects for Metropolitan Water District (MWD) of Southern California. His experience and expertise include rehabilitation & retrofit engineering & designs for existing facilities. His representative experience includes lead designer for the Lake Mathew Outlet Facilities, Colorado River Aqueduct Pumping Plant Seismic Upgrades, and Oxidation Retrofit (Ozone Disinfection) Projects for MWD's Mills, Jensen, Weymouth, Skinner, and Diemer Water Treatment Plants.

Registrations

Civil Engineer,
California #C34701

Structural Engineer,
California #S3023

Education

Graduate Courses,
Structural Dynamics,
California State University,
Los Angeles

B. S., Civil Engineering,
California State Polytechnic
University, Pomona

Representative Project Experience

Oxidation Retrofit Projects (ORPs) at Five Water Treatment Plants, Metropolitan Water District of Southern California (MWD). Lead structural engineer responsible for structural analysis and preparation of structural drawings & specifications and construction phase engineering for the \$850 million ORP projects at 520 mgd Weymouth, 750 mgd Jensen, 220 mgd Mills, 630 mgd Skinner, and 300 mgd capacity Diemer Water Treatment Plant. Also, served as lead QA/QC structural engineer for structural designs produced by outside consultants. during preliminary design and provided Structural QA/AC reviews for final design.

Filter Building and Filter Complex Seismic Upgrades, Weymouth Water Treatment Plant, MWD. Lead structural engineer for preliminary and final design of a large seismic upgrade project for the filter buildings and filter complex at the 520 mgd capacity Weymouth Water Treatment Plant in the City of La Verne. In 2016 received the American Concrete Institute Excellence in Concrete Construction Awards (First Place Award in Repair and Restoration Category at Southern California Chapter and Second Place at the National Convention)

Phase 4 Plant Expansion, Skinner Water Treatment Plant, MWD. Served as lead structural engineer responsible for the preparation of Module 7 structural construction drawings, calculations and specifications. The phase 4 plant expansion project included addition of 110 mgd Module No. 7 (clarifiers and filters), a 34 mgd capacity Washwater Reclamation Plant No. 3, new and consolidated chemical tank farms and feed systems, sludge handling facilities expansion, new water pumping stations; and related work.

Lake Mathews Outlet Facilities, MWD. Lead structural engineer responsible for the preparation of structural construction drawings, calculations and specifications. Performed the finite element dynamic structural analysis of the new outlet tower structure.

Development of Structural Design Manual Structural Engineering Guidelines, MWD. Lead efforts for the development, preparation and maintenance of Metropolitan's Structural Design Manual, standard structural details, master structural specifications, and standards such as the structural portions of the standard Preliminary Design Report, and submittal review procedures.

Lake Perris Dam and Outlet Facilities, Department of Water Resources (DWR), State of California. Participated on the value engineering team evaluating proposed remediation measures and developed alternative options for the seismic rehabilitation of the Lake Penis dam and outlet tower.

Seismic Retrofit of Colorado River Aqueduct (CRA) Pumping Plant Buildings, MWD. Served as project manager and lead structural engineer for the seismic retrofit of the pump house buildings at the Hinds, Eagle Mt, Iron Mt, Gene and Intake pumping plants. Developed seismic retrofit concepts, and prepared construction drawings including calculations and specifications for construction and Metropolitan forces work.

**JAMES
GINGRICH, SE**
Structural Engineer
(continued)

Seismic Retrofit of Colorado River Aqueduct (CRA) Pumping Plant Buildings, MWD. Served as project manager and lead structural engineer for the seismic retrofit of the pump house buildings at the Hinds, Eagle Mt, Iron Mt, Gene and Intake pumping plants. Developed seismic retrofit concepts, and prepared construction drawings including calculations and specifications for construction and Metropolitan forces work.

Seismic Retrofit of Colorado River Aqueduct (CRA) Discharge Pipelines, MWD. Served as project manager and lead structural engineer for the seismic retrofit of the delivery pipelines (penstocks) at the Hinds, Eagle Mt, Iron Mt, Gene and Intake pumping plants. Developed retrofit concepts and prepared construction drawings, calculations and specifications for construction and Metropolitan forces work. Performed the finite element dynamic structural analysis of the pipelines.

Seismic Retrofit of Electrical Buildings Nos. 1 and 2, Mills Water Treatment Plant, MWD. Served as design manager and lead structural engineer for the preliminary and final design for the seismic retrofit of two existing buildings, including mentoring & training the design and structural calculations of junior structural engineers.

Inland Feeder Pressure Control Structure, MWD. Served as design manager responsible for the coordination of multi-disciplined team and the preparation of construction drawings and specifications.

Colorado River Aqueduct (CRA) Quagga Mussel Study, MWD. Served as design manager responsible for preparing report evaluating the effects of the Quagga mussel infestation on the facilities (pumping plants, siphons, intake structures, tunnels etc.) along the entire reach of the Colorado River Aqueduct.

Diemer Washwater Reclamation Plant, MWD. Participated on the value engineering team evaluating the proposed new spent backwash reclamation plant and developed options.

Lake Charles Oil Refinery, Lake Charles, LA, Conoco Oil Co. Performed structural design of hydraulic decoking facilities for Conoco Oil Co. The 300 ft tall decoking towers were designed for hurricane wind load conditions near the Gulf of Mexico. Served as field engineer during construction.

T.V.A. Coal Gasification Plant, Tennessee Valley Authority, Lake Guntersville, AL. Served as field engineer for the exploration of a synthetic fuel plant, overseeing and coordinating the rock coring program.

Ammonia Plant, Trinidad Petroleum Corp., Claxton Bay, Trinidad. Served as field engineer responsible for the testing of several hundred cast-in-drilled-hole piles.

2016-17 Reservoir Management Systems Replacement, Moulton Niguel Water District. Structural Engineer for the design, and construction support services for the conversion of on-site hypochlorite generation systems to bulk liquid sodium hypochlorite for ammonia chloramine disinfection at three (3) different water reservoir sites in the MNWD service area. Each site contains one or two potable water storage reservoirs that supply domestic water to the local communities. The water is disinfected utilizing chloramines in the reservoirs to maintain the desired residual chlorine concentration prior to delivery. Each disinfection facility contains sodium hypochlorite and ammonia storage and feeding systems and includes a chemical storage building, storage tanks, chemical piping, analyzers and dosage control, chemical leak detection systems, sample and drain piping, electrical, process monitoring SCADA, HVAC, safety devices, and site utilities.

Wastewater Pump Stations, Coachella Valley Water District, Palm Desert. Lead structural engineer for preliminary and final design of two wastewater pump stations having a construction value of \$12 million. Pumps are located in 40 ft deep underground structures. The project included large diameter pump suction and discharge manifolds which require extensive structural anchors and supports.

Hauck Mesa Reservoir, Pipeline and Surge Protection Project, San Diego County Water Authority. Lead structural engineer for final design of a \$13 million water storage and surge protection project consisting of 2.1 MG capacity prestressed concrete reservoir, large diameter piping and valve vaults, surge control systems, retaining walls and various site improvements.





SHAWN HILLERS, PE

Electrical Engineer

Shawn Hillers' experience includes 15 years working in the electrical field with 8 years as a licensed Professional Engineer. Shawn has functioned as lead electrical engineer on numerous water infrastructure projects covering electrical, instrumentation & control (I&C) system design and construction. Engineering and construction experience include medium and low voltage electrical distribution including switchgear and motor controls, variable frequency drives (VFDs), communication and security alarm systems, process I&C and SCADA, standby & emergency power generation, interior and exterior lighting, area & roadway lighting, and fire alarm systems. His experience also includes 7 years of experience as a transmission, protection and control (P&C), and substation engineer. Areas of practice included water and wastewater treatment plants, water and wastewater pump stations, water reuse facilities, storm water pump stations, seepage water pump stations, operation and maintenance complexes, flow control structures, and industrial/commercial buildings.

Registration

Electrical Engineer,
CA #E21912;
Florida #69766

Education

BS, Electrical Engineering,
University of Central Florida

Representative Project Experience

Pump Station 2 (PS2) Power Reliability and Force Main Surge Protection Project, City of San Diego. Project Engineer responsible for the final design for a \$56 million pump station upgrading project. PS2 has a pumping capacity of 432 mgd and houses six 2,250 HP electric motor driven pumps and two 2,400 HP engine driven pumps. This project is to replace two engine driven pumps with 2,250 HP motor driven pumps, install two 3,000 kW natural gas engine driven generators, and two 4,000 kW diesel engine driven emergency generators (total 14 MW) in a new 8,000 sf. and 40 ft. high building. The project included extensive reconfiguration and upgrading of electrical systems. The project also included study and mitigation of hydraulic surge on the 72-inch and 84-inch dia. dual force mains to the Point Loma Wastewater Treatment Plant. The new power generation system will power 2,500 HP pumps and mitigate hydraulic surge on the force mains. Project challenge's included air permitting with the San Diego County APCD, primary power arrangement with SDG&E, and design of a large generator building in a tight site adjacent to the San Diego Airport.

2017-18 Electrical System Improvements Project, Moulton Niguel Water District, Laguna Niguel. Project Manager and Lead Electrical Engineer for electrical system improvements at three District domestic water pump station facilities. Scope of work includes replacement of the main switchboard, ATS, MCC and VFDs at Pacific Island Drive No. 3 Pump Station; replacement of the main switchboard and generator load bank at Highlands Pump Station and La Paz Reservoir Pump Station. Pacific Island Drive No. 3 Pump Station requires temporary power to remain online and operational during the construction work.

East Zone A to B Booster Pump Station (BPS) Upgrade Project, Irvine Ranch Water District. Lead Electrical and I&C Engineer for Pump Addition and Control System Modification Project. The existing BPS contains four Goulds pumps, and one spare pump can for a future pump. Each pump has a capacity of 2,000 gpm at a TDH of 201 feet. The pumps are housed in a 24-inch dia. pump barrel. The project was to install a 5th Goulds pump with the same capacity of 2,000 gpm at a TDH of 201 feet. Currently, two pumps are driven by soft-starters and the other two by VFDs. This project replaced two VFDs. The current PLC utilizes a combination of the original PLC (Modicon 984), and a later installed updated PLC (Modicon M340). All existing I/O is routed to the Modicon 984 that utilizes Ethernet to communicate to the Modicon M340. This project replaced Modicon 984 including, the light board, analog displays, and battery backup.

Santiago Hills II Zone 5 to 6 Domestic Water and Zone C+ to E Recycled Water Booster Pump Station Project, Irvine Ranch Water District (IRWD), Orange, CA. Project Electrical and I&C Engineer for the addition of a new domestic water pump station and recycled water pump station facility. The domestic water pump station consists of three 60 HP pumps controlled via soft starters integrated into a dedicated domestic water 480V motor control center (MCC). The recycled water pump station consists of four 75 HP pumps and two 10 HP jockey pumps controlled via variable frequency drives (VFD) integrated into a dedicated recycled water 480V MCC. A 200kW on-site emergency generator dedicated for the domestic water pumps was designed. The I&C design



**SHAWN
HILLERS, PE,**
Electrical Engineer
(continued)

consists of incorporating the new programmable logic controller (PLC) into IRWD's existing supervisory control and data acquisition (SCADA) system. Total estimated costs for the domestic water pump station is \$2 million and the recycled water pump station is \$1.9 million.

Hauck Mesa Storage Reservoir and Surge Protection Project, San Diego County Water Authority (SDCWA), Escondido, CA. Electrical and I&C Engineer for the addition of a new flow control facility. The new flow control facility consists of five motor operated valves (MOV) feed from an uninterruptable power supply (UPS). I&C design consists of incorporating the new programmable logic controller (PLC) into SDCWA's existing supervisory control and data acquisition (SCADA) system. Total estimated cost for the flow control facility and storage reservoir is \$12 million.

Cutler and Deering Estate Flow-way Pump Stations Project, South Florida Water Management District (SFWMD), West Palm Beach, FL. Electrical and I&C Engineer for the engineering and design for 2 new flow-way pump stations. Deering Estate Pump Station contains two 75 HP and one 150 HP submersible pumps. Total estimated cost for Deering Estate Pump Station was \$6.1 million. Cutler Pump Station contains four 300 HP pumps. Total Estimated cost for Cutler Pump Station was 16.2 million.

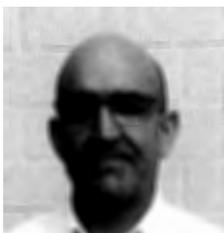
Pump Station 2 (PS2) Power Reliability and Force Main Surge Protection Project, City of San Diego. Project Engineer responsible for the final design for a \$56 million pump station upgrading project. PS2 has a pumping capacity of 432 mgd and houses six 2,250 HP electric motor driven pumps and two 2,400 HP engine driven pumps. This project is to replace two engine driven pumps with 2,250 HP motor driven pumps, install two 3,000 kW natural gas engine driven generators, and two 4,000 kW diesel engine driven emergency generators (total 14 MW) in a new 8,000 sf. and 40 ft. high building. The project included extensive reconfiguration and upgrading of electrical systems. The project also included study and mitigation of hydraulic surge on the 72-inch and 84-inch dia. dual force mains to the Point Loma Wastewater Treatment Plant. The new power generation system will power 2,500 HP pumps and mitigate hydraulic surge on the force mains. Project challenge's included air permitting with the San Diego County APCD, primary power arrangement with SDG&E, and design of a large generator building in a tight site adjacent to the San Diego Airport.

Electrical Upgrade Project, Coral Springs Improvement District (CSID) Wastewater Treatment Plant, Coral Springs, FL. Electrical and I&C Engineer for the replacement of the existing main 480V motor control center (MCC), emergency generator, motor operated valves (MOV), and pumps; and installation of new pumps and a new 150 HP aeration blower. The design included construction sequencing plans to relocate existing load to half of the existing MCC to keep the plant fully operational, while the new 2,000A MCC was being installed. A new 1,250kW on-site emergency generator was installed to replace the existing generator.

Switchgear Condition Assessment, Electrical Reliability Study and Switchgear Replacement Project, Wastewater Treatment Plant, Delta Diablo Sanitation District (DDSD), Antioch. Project Engineer for plantwide electrical system analysis, condition assessment and preliminary design report for a switchgear replacement project at the 16.5 mgd capacity treatment plant. The DDSD's existing switchgear was constructed in 1982 and distributes 480V power via 21kV utility drop and step-down transformers to 17 load centers for treatment process units, and operations buildings. The typical operating plant load is between 800 and 1,000 kW. This project was to develop a comprehensive study report describing the utility primary power and plantwide electrical distribution reliability, emergency power needs, switchgear redundancy, arc flash protection, regulatory and utility permit requirements, and other features to ensure operational reliability for the next 30+ years. The preliminary design report included single line diagrams (for the new switchgear, cogeneration & standby power) and all existing and new load centers, recommended equipment specifications, site plan, switchgear plan and elevations, construction cost estimates, and permit and utility coordination requirements.

Wastewater Lift Stations Emergency Generator Addition Project, Seacoast Utility Authority (SUA), Palm Beach County, FL. Electrical Engineer for the installation of the new emergency generators and automatic transfer switches (ATS) at 10 critical lift stations. The largest master lift station had a new 200kW emergency generator installed.





JAMES JETTON, PE

Process & Mechanical Engineer

James Jetton has over 25 years of experience in engineering, design and construction of water and wastewater treatment facilities. James is experienced in all stages of project execution from planning and design through construction and start-up. His engineering experience covers most of the wastewater unit processes including headworks, primary & secondary clarifiers, activated sludge, disinfection, sludge dewatering and odor control. His experience has been particularly focused on rehabilitation and replacement type projects where practical as well as innovative approaches are often required to reduce construction costs and maximize the value of existing facilities. James has valuable experience with restoration of treatment plant concrete and steel structures damaged by hydrogen sulfide corrosion. He has worked with plant operations and maintenance staff and executed upgrades and retrofits of the process units that must remain online and in compliance with the regulatory requirements during construction.

Registration

Civil Engineer, California
#C54237

Education

M. S., Civil Engineering
with Environmental
Emphasis, Oregon State
University

B. S, Civil Engineering &
Water Resources, Oregon
State University

Representative Project Experience

Wastewater Treatment Plant Expansion, Valley Sanitary District, Indio. Assistant Project Manager and Lead Design Engineer responsible for process analysis and process unit sizing, and final design for a \$25 million plant expansion (from 7.5 to 13.5 MGD) project which consists of activated sludge plant expansion, hypochlorite chlorination & bisulfite dechlorination, and sludge dewatering facilities. Facilities designed and constructed included new aeration blowers, modification of aeration basins (anoxic and oxic cells), installation of fine bubble air diffusers, new circular secondary clarifiers, chlorine contact tanks, a 54-inch outfall, sludge thickening and belt press dewatering facilities, and complete rehab of electrical systems. The expansion of the aeration process system requires extensive rehabilitation of corroded concrete and metal items in and around the aeration basins, distribution channels, and clarifiers.

Wastewater Treatment Plant Expansion, City of Patterson. Project Manager for the 1.25 MGD, \$15 million, activated sludge treatment facility that included an extended air oxidation ditch, circular clarifier, three aerobic digesters, three plastic media sludge drying beds, polymer feed systems, an influent climber screen & grinder structure, effluent pump station, 4,000 feet of 16-inch effluent piping, and 30 acres of new percolation ponds. The project was to meet strict nitrogen removal requirements while minimizing power consumption and sludge production. New influent climber screens were retrofit into the existing pump station to protect the downstream equipment.

Wastewater Treatment Plant Rehabilitation and Replacement Project, City of Davis. Project Manager and Engineer for design and construction of a complete rehabilitation of the existing 7.5 MGD WWTP from the influent gate through the primary clarifiers. Dual front-raked bar screens with screenings washer/compactors were added to the existing channels as the configuration, depth, and width of the themselves channels were revised to minimize grit deposition and concrete corrosion. This \$5 million project included significant upgrades to the existing dry pit influent pumps, which were oversized for current flows and had significant O&M challenges. The improvements included revised suction piping, new pumps, and a revised discharge piping arrangement. The improved facility operates at a higher efficiency, with flow turndown, and reduced incidence of clogging. Primary clarifier improvements include new chain and flight scrapers equipment.

Wastewater Treatment Plant Gravity Thickener Rehabilitation, City of San Mateo. Project Engineer for a condition assessment of the existing gravity thickening system at the City of San Mateo WWTP. The assessment included examining the mechanical and structural components of the thickener tank, mechanism, and exposed piping; developing options for replacing the existing sludge withdrawal lines; modifications to the existing pump room layout; modifications to change the configuration of the tanks from square to circular; piping modifications, and various other minor items related to the thickener system.

**JAMES
JETTON, PE**
Process &
Mechanical Engineer
(continued)

Maintenance Projects, South County Regional Wastewater Authority, Gilroy. Project Manager for \$10 million design of upgrades to the existing 8.5 MGD oxidation ditch treatment plant. Upgrades included new anoxic zones for denitrification, additional aeration capacity, expansion of the solids handling facility, and a new maintenance building. To maximize the utility of the existing oxidation ditch tankage, design included addition of a fine bubble diffuser oxygen delivery system to supplement and augment the current surface aeration system. This system dramatically lowered electrical costs associated with aeration. A third 130-foot diameter secondary clarifier was added to improve settling and redundancy.

Influent Pump Station, Wastewater Capacity Expansion Project, South County Regional Wastewater Authority, Gilroy. Project Engineer for the design and construction of a \$7.5 million, 40 MGD Influent Pump Station. The station design included two ½ inch spacing deep well screens ahead of a split wet well pump station to insure reliable pump station operations. The screens, and associated screenings washer/compactors, are contained in a new structure to insure odor and vector containment. To reduce construction costs, the new electrical equipment was housed in an unused portion of the existing pump station building and the existing backup generator system was utilized in its current location.

Sacramento Regional Wastewater Treatment Plant Primary Reliability Project, Sacramento. Project Engineer for the preliminary design of new primary treatment processes. Responsible for preliminary design of a new aerated grit tank and grit handling facility utilizing grit cyclones, classifiers, overflow rotary screens, grit storage hoppers, and truck loading capabilities including the development of project alternatives, construction costs, and schedule estimates. The grit handling facility design included capacity enhancements to replace the existing grit handling equipment for the existing aerated grit tanks with a hydraulic capacity of 400 MGD.

Sacramento Regional Wastewater Treatment Plant Grit System Modification, Sacramento. Project Engineer for the design studies and detail design of major modifications to grit removal facilities. Study phase activities included the assistance with pilot plant studies, hydraulic modeling, and the development and analysis of alternatives for improving grit removal efficiencies. Design activities included modifying and rerouting of existing piping, as well as additions of baffles within the grit tanks for improved grit removal.

Citywide Lift Station Assessments, City of Davis. Project Manager for assessments and inventory of the structural, mechanical and electrical components of the City's 14 sewage and storm water pump stations, preparation of a summary report, with recommended improvements, and planning-level cost estimates for development into a Capital Improvement Program (CIP). Activities included a review of existing as-builts, field visits, and interviews with O&M staff regarding the equipment and condition, structural evaluation of select lift stations, and electrical evaluation of all lift stations. Assessments and recommendations regarding the pump condition and access, piping, valves, wet well / dry pit condition and access, electrical equipment condition, instrumentation, safety, security, and lighting with organized for presentation into tabular format for easy review and comparisons.

Operations Support projects, San Jose/Santa Clara Water Pollution Control Plant, San Jose. Project Manager and Engineer for multiple Operations Support Projects including the design of a replacement plant water pumping system, total flow 14,000 gpm and improvements to the existing site and lighting at the nitrifying clarifiers for this 167 MGD WWTP.



JAY JUNG, PE Project Manager

Jay Jung has over 15 years of process research & selection and design, as well as facility engineering & design and construction management experience in the municipal water and wastewater treatment fields. His areas of expertise include pilot or full-scale testing, sampling and data analysis, and selection, development and sizing of treatment process trains. He also has experience with feasibility studies, analysis of existing process trains, preparation of design reports, and preparation of construction documents for new process trains or rehabilitation of existing plant systems, equipment and facilities. Jay has been a project engineer and project manager responsible for development of plant design criteria, P&IDs, hydraulic profiles, and detailed design drawings for a wide variety of water and wastewater treatment facilities. His area of expertise includes biological nutrient removal, chemical conditioning and chemical handling facilities including tank farms and metering pumps, disinfection, granular activate carbon adsorption, and membrane filtration and biofiltration.

Registration
Civil Engineer,
California #C75672

Education
Ph. D. Candidate, University
of Southern California
(Completed 4 years in Ph.D. Program)

M.S. Environmental
Engineering, University of
Southern California

M.S. Environmental
Engineering, Yonsei, Korea

Representative Project Experience

Wastewater Treatment Plant (WWTP) Upgrading and Improvements, City of Brawley. Assistant Project Manager for a \$25 million, 5.9 mgd wastewater treatment plant upgrading project - conversion from aeration ponds to a full secondary treatment with nitrification & denitrification. Responsible for process analysis and development of design criteria and preliminary design report, final design, and construction phase engineering, and plant start-up and commissioning. Also, prepared industrial waste pretreatment program. The upgraded plant included grit removal, activated sludge, UV disinfection, sludge thickening, centrifuge sludge dewatering, and solar greenhouses designed to produce Class A biosolids.

Wastewater Treatment Plant Upgrading Project, City of Holtville. Assistant Project Manager for this \$11.5 million project that includes a preliminary design report and final design of major upgrades to the existing 0.85 mgd secondary treatment plant. Improvements include a new operations building, new septage receiving station, new headworks, new secondary aeration basin with integral clarifiers, conversion of existing secondary clarifiers for plant water service, rotary drum thickener with polymer injection system, and sludge drying beds, filtration units, UV disinfection, and aerobic sludge digesters. The existing plant's electrical system was upgraded from a 220V system to 480V with a new IID electrical service.

Avenue 54 Wastewater Treatment Plant Phase 2 Expansion, City of Coachella. Project Manager for preliminary design, detailed design, bid support services, engineering services during construction, and construction management and inspection services for Phase 2 Expansion at the City's 4.5 MGD Avenue 54 Wastewater Treatment Plant. The Phase 2 Expansion consists of rehabilitating and upgrading of the two contact stabilization tanks (1.5 MGD capacity) in addition to providing additional sludge dewatering capacity (drying beds) and new aeration blowers and aeration process control systems.

Water Reclamation Plant No. 7 Expansion and Upgrading, Coachella Valley Water District, CA. Project Engineer for preparation of a preliminary design report and final design services for a California Title 22 water recycling plant expansion from 2.5 to 5.0 mgd. The design for this \$9 million project added a rapid mix tank, two flocculation basins, three dual media filter cells (anthracite and high-grade sands supported by a layer of gravel resting on underdrain system), 5 mgd capacity chlorine contact tank, chlorination system, chlorine storage and feeding system, filter influent pumps, recycled water pumps with surge control system, alum and polymer storage and feeding system, motor control centers, and SCADA system.

Flow Equalization and Effluent Monitoring Project, Regional Water Recycling Plant No. 5 (RP-5), Inland Empire Utilities Agency, Chino. Project manager for design and construction of upgrades to various rp-5 plant processes, including replacement of sodium bisulfite and sodium hypochlorite chemical metering pumps and instrumentation improvements at the tertiary chemical facility, flow metering and chemical injection improvements to the chlorine disinfection system in the chlorine contact basin, and optimization of the use of recycled water by automating bypassing of peaks flows to the equalization basin.



JAY JUNG, PE
Project Manager
(continued)

Chemical Systems Upgrades & Modules 1&2 Rehab Project, Mills Water Treatment Plant, MWD of So. Ca. Process Engineer for the preliminary and final design of chemical storage and feeding system upgrades with an estimated construction cost of \$17 million for the 326 mgd treatment capacity. The chemical systems include sulfuric acid, caustic soda, alum/ferric, poly-dadmac, chlorine, sodium hypochlorite, aqueous ammonia, dry polymer, and fluorosilicic acid.

Back Basin Ground Water Treatment Plant, Elsinore Valley Municipal Water District. Project Manager for development of start-up and testing procedures and training of plant personnel during the commissioning of the 5 mgd groundwater treatment plant. The process involved pressure filtration including air scour and backwashing with water; ferric chloride, caustic soda, and ammonia storage and feeding systems; on-site generated sodium hypochlorite disinfection; service water pumping; recovery and recycle of backwash after settling out solids; and monitoring of turbidity, pH, total chlorine residual, free chlorine residual, and ammonia in the process water.

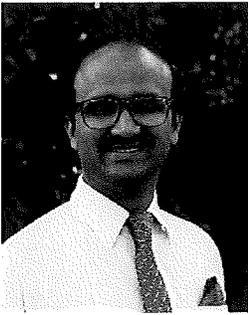
Ferric Chloride Full Scale Demonstration Test at Hyperion Wastewater Treatment Plant (HTP), West Basin Municipal Water District. Project Engineer for development of a test protocol and design a ferric chloride system to targeted HTP secondary clarifiers. Test procedures were developed, sampling locations identified, and frequencies specified, and constituents to be tested were identified. This full-scale pilot chemical injection system was to determine if HTP secondary effluent quality can be further improved by addition of ferric chloride to achieve additional solids removal (to enhance recycled water output) by the existing MF/RO trains.

Sulfuric Acid Storage System, Three Valleys Municipal Water District. Project Manager for design of a sulfuric acid tank farm, with storage tank, metering pump, and appurtenant equipment to reduce pH at the head of the treatment process to assist in lowering disinfection byproduct formation at the District's 25 MGD Miramar Water Treatment Plant.

Exxon-Mobil and BP CMF Clean-in-Place Systems, West Basin Municipal Water District. Project Manager for engineering design of Microfiltration Clean-In-Place (CIP) systems at two of the District's satellite facilities located at the Exxon-Mobil Refinery in Torrance and the British Petroleum Refinery in Carson. The satellite facilities further treat Title 22 recycled water using MF followed by RO for boiler and cooling tower applications at the refineries. This project provided a second CIP system at each facility, integrated with the existing CIP systems, to increase the efficiency of the MF process.

Earl Schmidt Filtration Plant (ESFP) Washwater (WW) and Sludge System Improvements, Castaic Lake Water Agency. Project Manager for \$7.5 million upgrading at the 56 mgd ESFP which treats State Project Water. WW from clarifiers and filters are stored in WW basins and pumped to the WW treatment facilities. The Calif. DPH Cryptosporidium Action Plan requires a 2 NTU recycled water turbidity limit and regulates the total recycle water flow to be less than 10% of the plant flow. This project is to satisfy the DPH rule. The project design included two new 620,000-gallon capacity WW basins with automatic sludge scrapper system and floating decanters, a WW wet well, upsizing of conveyance piping, a new sludge thickener & drying bed, electrical, and various site improvements.





MURTHY KADIYALA, PE, PLS

Civil

As a licensed professional engineer and professional land surveyor, Murthy Kadiyala has over 15 years of municipal civil and infrastructure engineering, design, and construction experience in water and wastewater conveyance systems including water transmission mains, trunk sewers, and force mains, storage tanks and pump stations. Murthy has extensive experience with hydraulics and hydrology and modeling expertise with H2ONet, InfoWater, WaterCAD, SewerCAD, and ArcGIS. He also has high level skills in AutoCAD Civil 3D, TerraModel and MicroStation applications. Murthy is a licensed surveyor with experience in property boundary legal analysis and land surveying both field and office. He has also served in the responsible role of a water and wastewater plan checker for many years. His knowledge of the service connections to private developments including land title and encumbrances has enabled him to resolve potential issues early in the design process. Murthy has engineered water and wastewater conveyance projects which require extensive permitting, right-of-way acquisition and analysis, traffic & noise mitigation, and public relations. Murthy has engineering experience with trenchless construction including micro-tunneling and jack and bore.

Registrations

Civil Engineer, California
#C73472
Professional Land Surveyor,
L9180

Education

MS Civil Engineering,
Michigan State University,
East Lansing, Michigan

BE Civil Engineering,
Osmania University,
Hyderabad, India

Representative Project Experience

Irrigation Main Replacement Project, Coachella Valley Water District, Palm Desert. Project Engineer for engineering and design of replacement of 18,500 LF of irrigation piping of various sizes (ranging from 18 to 30 in. dia.). The existing pipeline has experienced hydraulic surging and numerous leaks that adversely impact the delivery of canal water to the District's customers. Replacing the concrete pipe with new C905 PVC pipe and the removal of baffle stands will convert the canal water distribution system from gravity flow to a pressurized system, effectively eliminating the surging and water losses. This \$7 million project also installs new in-line meters at the delivery points to reduce energy consumption. Existing irrigation services must be maintained during construction and a temporary highline for bypassing will be required to maintain service. The existing pipeline alignment lies in a 10-foot wide USBR easement. Evaluated alternative alignments and slip lining or CIPP lining. Project requires permits from the Riverside County Transportation Dept., California Regional Water Quality Control Board, and the State Water Resources Control Board's Division of Drinking Water.

State College Boulevard Water Main Realignment Project, City of Anaheim. Project Engineer for design of the \$2.5 million water main project along the State College Boulevard in the City of Anaheim. This project relocates water mains that were interfering with a new 54-inch trunk sewer to be constructed between the 91 Freeway and Howell Avenue. The project included replacement of 400 LF of 6-in and 10-in CIP to 12-in DI pipe; 2,700 LF of 6-in CIP to 12-in DI pipe; and 400 LF of 18-in concrete cylinder pipe to 18-in DI pipe. State College Boulevard is a busy arterial with numerous underground utilities. The City of Anaheim electrical facilities are underground, and waterlines must avoid buried duct banks. Waterlines were designed to provide an adequate vertical clearance around 8 ft x 8 ft RGB storm drain culverts and 45-in and 81-in dia. storm drains.

Newhope Trunk Sewer, Orange County Sanitation District (OCSD), Fountain Valley. Staff Engineer and QA/QC team member for the \$80 million, 54-inch dia, 38,000 LF trunk sewer replacement project in the State College Blvd. in the Cities of Fullerton and Anaheim. Engineering services include investigating utilities, preparing construction documents suitable for bidding, assisting OCSD with acquisition of easements and right of way, obtaining permits, and conducting a public outreach programs. Murthy is coordinating the efforts of the utility investigation by overseeing an ASCE SUE Level A Utility Investigation through the Cities of Fullerton, Anaheim and Orange.

Water and Wastewater System Analysis, Naval Base San Diego. Project Engineer responsible for developing and analyzing the water and wastewater sewer models for Naval Base San Diego using WaterGEMS and SewerGEMS software. The water pipe sizes ranging from 6-inch to 16-inch diameter measured approximately 160,000 LF, while the sewer pipe sizes ranging from 4-inch to 24-inch diameter measured approximately 70,000 LF. Hydraulically deficient water pipes were identified for renewal. Sewer pipes for renewal were identified by hydraulic deficiencies and



MURTHY
KADIYALA, PE, PLS
Civil
(continued)

structural deficiencies as observed in the CCTV videos. Applied the PACP Defect Coding methodology in reviewing the CCTV videos.

South Milliken Water Transmission Main Project, City of Ontario. Project Manager and Lead Designer for a project that was complex in terms of large size water pipelines that needed to be relocated outside of the proposed overpass along Milliken Avenue crossing Union Pacific Rail Road (UPRR) and Mission Boulevard bordering the Cities of Ontario and Eastvale. Responsible for relocation and realignment of 2,000 LF each of existing 16-, 18-, 20-, 30- and 42-inch dia. welded steel cement mortar lined and coated pipes. The challenge was to stay clear of the overpass footprint including retaining walls, bridge columns etc. to make sure the pipelines are accessible for maintenance in the future. Murthy also coordinated and obtained easements. Cathodic protection of the relocated pipelines was also designed to quell the corrosion effects of active currents protecting nearby gas transmission mains.

Edwards Varsity Water Main Replacement Project, City of Huntington Beach. Project Manager for engineering, design and construction support services for replacement of approximately 3,150 LF of potable water pipelines, service laterals, and appurtenances. The project is in the residential community immediately northwest of the intersection of Edwards and Varsity Streets. The project is to replace 8-in. and 6-in. asbestos cement pipe (ACP) with AWWA C900 PVC pipe. Construction documents prepared fully described the best management practices (BMPs). Project issues included removal and disposal to AC pipe, community outreach and public relations, traffic control during construction and minimizing water service disruption.

Van Buren Regional Force Main and Recycled Water Main, Jurupa Community Services District (JCSD), Mira Loma. Project Manager for a water transmission project to utilize available utility corridor within the new Santa Ana River bridge crossing along Van Buren Blvd. and to replace the existing siphons underneath the river bed. Selected the pipe material, appurtenances, tie-in connections, transitions including the double-ball joints to protect against ground shaking due to an earthquake. For the bridge crossing the design was approved with a 24-inch dia. fusion bonded HDPE through the bridge deck which transitioned to ductile iron pipe in the ground behind the bridge approach slabs. Project also included an 18-inch dia. welded steel recycled water pipeline pipe, cement mortar lined (CML) and tape wrapped within the bridge deck followed by CML and coated pipe behind the bridge approach slabs. Responsible for reviewing and responding to the contractor's submittals and RFIs during construction.

Sanitary Sewer Capital Improvement Program, Edgemont Community Services District (ECSD), Riverside. Planning Engineer responsible for identifying and prioritizing projects for the annual replacement of sewers as part of the ECSD CIP Program. He was also the Design/Project Engineer responsible for the design, bidding and construction management of two of the five annual sewer replacement projects, each consisting of approximately 4,000 LF of 8-inch to 18-inch diameter VCP pipe in the City of Moreno Valley. His responsibilities include review of contractor's submittals, RFIs, coordination with the permitting agencies, field construction management personnel, and construction documentation.

Clay Street Grade Separation Project, Utility Relocation, Jurupa Community Services District (JCSD), Mira Loma. Project Engineer for utility identification and relocation is a prerequisite to any grade separation project. Implemented re-alignments for JCSD's existing water and sewer lines, rerouting them through jacked and bored casings underneath Union Pacific Rail Road (UPRR). Murthy also researched utilities and coordinated the potholing efforts along the approved re-alignment and designed the pipelines around these utilities and helped acquire UPRR Crossing Permit. This project also entailed replacing the existing Clay Street Sewer Lift Station for which Murthy was responsible for review and validation of hydraulics.

12 MG Sunnyslope Water Storage Tank, Jurupa Community Services District (JCSD), Mira Loma. Murthy provided construction phase engineering services for a 12 million-gallon (MG) capacity pre-stressed post-tensioned concrete reservoir in the Jurupa Hill. Reviewed contractor's submittals, RFIs and RFCOs. Murthy also coordinated SCE service connection, from the off-site pole-mounted transformer. The offsite Storm Drain connection also needed to be routed to avoid conflict with a nearby proposed private development.





KEVIN KENNEDY, PE

Technical Advisor

Kevin Kennedy has over 23 years of comprehensive wastewater treatment planning, design, regulatory compliance, engineering services during construction and project management experience. As described below, he has extensive experience in wastewater treatment plant design and quality assurance / quality control. Kevin helped SFPUC develop, initiate and manage activities needed to coordinate and implement San Francisco Public Utilities Commission's (SFPUC's) \$2.7 billion Phase 1 Sewer System Improvement Program at the Southeast Plant. Specific responsibilities included managing the coordination, review and logistics of 25 separate projects along with multiple repair and replacement improvements to help minimize disruptions and maintain continuous operation and regulatory compliance. Kevin also served as program manager/extension of staff for Napa Sanitation District's wastewater treatment plant master plan. Kevin is capable and available to fully support the City, deliver successful projects and can serve as extension of staff if desired.

Registration

Professional Civil Engineer,
CA #61206

Education

M.S., Environmental
Engineering, University of
California, Davis, 1996
B.S., Civil and
Environmental Engineering,
University of California,
Davis, 1994

Representative Project Experience

San Francisco Public Utilities Commission (SFPUC) Task Order 29 – SEP Site Logistics – Project Manager, Southeast Water Pollution Control Facility (SEP), San Francisco, CA. Developed and initiated various activities needed to coordinate and implement SFPUC's \$2.7 billion Phase 1 Sewer System Improvement Program at the SEP. Coordination efforts included review and understanding of over 25 separate SSIP SEP Projects along with multiple repair and replacement projects to help minimize disruptions and maintain SEP in continuous operation and regulatory compliance throughout construction. Specific activities included utility (i.e., W1, W2, W3, and sewer/storm drain) planning and implementation, project interface and shutdown identification and coordination, and utility base map development.

San Francisco Public Utilities Commission (SFPUC) Task Order 23 – New Headworks AAR and CER Participation - Project Manager, Southeast Water Pollution Control Facility (SEP), San Francisco, CA. Developed Alternatives Analysis Report (AAR) for a new 250 MGD headworks. The new headworks will replace the two existing headworks at the SEP - SEP 012 (all weather) and 011 (wet weather only). The new headworks will be state of the art and include fine screening and grit removal (95% removal of 105 micron and larger particles). Specific activities included site and technology evaluation, comparison and selection; pilot testing of Pista 360 and Headcell units; and construction sequencing.

Screw Press Dewatering - Monterey Regional Water Pollution Control Agency, Monterey, California. Performed biosolids dewatering comparison study for the agency's 21 mgd Regional Treatment Plant. Belt filter press, centrifuge dewatering, drying beds, recessed filter press, rotary press, and screw press technologies were investigated. Operations and maintenance (O&M) requirements for the existing biosolids storage and dewatering operations, and construction and O&M costs were considered in the evaluation. Dewatering centrifuges and screw presses were selected for further review; ultimately the agency selected screw presses. Subsequently managed prepurchase and design of new screw press dewatering system. The system includes sludge feed tanks and pumps, liquid polymer blending and feed system, two flocculation tanks, two rotary screen thickeners, two screw presses (for Class B sludge production, with the ability to accommodate Class A sludge production in the future by adding lime handling system, lime/sludge mixing tank, and potential boiler skid system) and associated piping, electrical equipment, instrumentation, and two biosolids cake storage tanks. The cake conveyance system conveys dewatered cake from the screw presses directly to rolling bins or trucks for subsequent hauling and disposal. A new access road was also included in the design.

Centrifuge Replacement - Delta Diablo Sanitation District, Antioch, California. Project manager for design and construction of centrifuge replacement improvements, which included replacement of two conventional Bird centrifuges with two new high solids units (each rated at 160 gpm), replacement of the uncovered belt-type cake conveyor with a new stainless steel shaftless screw

**KEVIN
KENNEDY, PE**
Technical Advisor
(continued)

conveyor, replacement of centrifuge sludge feed pumps and sludge grinders, and associated electrical and instrumentation/controls work (including interfacing with the district's existing SCADA system). The project also included structural analysis (including resonance analysis) of the existing centrifuge platform and design of any structural improvements to accommodate high solids centrifuges.

Polymer System Improvements - Delta Diablo Sanitation District, Antioch, California. Project manager for design, bidding, and construction engineering services for dry polymer system improvements at the wastewater treatment plant.

Aeration System Upgrade, Chemically Enhanced Primary Treatment (CEPT), and Tower Bypass - Delta Diablo Sanitation District, Antioch, California. Assistant project manager during predesign, design, bidding, and construction of aeration system upgrades, CEPT, and tower bypass improvements at the 16.5 wastewater treatment plant. Aeration basin improvements comprise of replacement of the mechanical aerators in the aeration basins with a more energy-efficient and cost-effective fine-bubble aeration system. The diffused air system includes new aeration blowers, air piping, aeration diffusers, and ancillary electrical and instrumentation systems. The tower trickling filter bypass improvements involve retrofit of the existing flow equalization basin pumping system and piping to allow a portion of primary effluent around the trickling filters directly to the aeration basins. Bypassing the primary effluent around the aeration basins limits the biochemical oxygen demand (BOD) loading to the trickling filters, thereby limiting odors. CEPT system improvements involve providing a storage and automated feed system to dose chemicals to the primary clarifiers to enhance existing primary treatment, resulting in improvement reliability of the wastewater treatment plant to maintain high effluent quality during periods of stress, such as during high flow conditions and when one of the secondary treatment units (aeration tanks, tower trickling filter, or secondary clarifier) must be taken out of service for maintenance or repair.

New MBR Wastewater Treatment Plant - City of Healdsburg, California. Lead design engineer for predesign and detailed design of new \$30 million, 1.4 mgd average dry weather flow (ADWF) and 7.0 mgd peak hour (with flow equalization) wastewater treatment plant, which uses an activated sludge process, followed by membrane bioreactor (MBR) process for filtration. Improvements include the following: (1) headworks facility consisting of coarse (1/4-inch) and fine (1 mm) screens, grit removal, flow measurement, equalization basin diversion structure, and odor control; (2) biological treatment facility that includes aeration basins, aerobic digesters, anoxic zones, membrane immersion tanks, splitter boxes, odor control, walk-on aluminum covers, and pre-engineered metal building that is opened on two sides; (3) MBR facility with pumps, chemical equipment, and other control equipment; (4) operations building (masonry) containing the control room, laboratory, locker room(s), and employee break room; (5) ultraviolet (UV) disinfection for final effluent disinfection; (6) sludge storage and handling, which utilizes the Cannibal® process to reduce the overall quantity of solids handling requirements at the wastewater treatment plant; (7) effluent storage pond lined with a geo-membrane (synthetic) liner, as well as a reclaimed water pumping station adjacent to this pond; and (8) conversion of the existing treatment ponds to influent flow equalization storage. The solids handling system includes a solids storage tank (aerobic digester), fine screens, and final sludge dewatering device (i.e., a belt press or centrifuge) housed within a masonry building. The dewatering device and controls are housed in a masonry building. The existing ponds were dried and cleaned after the wastewater treatment plant was constructed, and an impermeable liner was installed in these ponds.

Yuba City Wastewater Treatment Plant Expansion - City of Yuba City, California. Performed process analysis and pretreatment evaluation for the wastewater treatment plant expansion from 7 to 12 mgd. Processes include solids dewatering (including belt press), headworks, aeration basins, oxygen generation, chlorine contact basins, and digestion.

Primary Treatment System Expansion - City of Yuba City, California. Process/hydraulics design for predesign and design of the primary treatment system expansion, including new primary sedimentation tank, rehabilitation of the existing primary sedimentation tank, demolition of biofilter pumping station, site drainage improvements, raw sludge and scum pumping, influent flow split (gravity), odor control, site work, yard piping, landscaping, and computer control integration.





SAM LEE, PE Project Engineer

Sam Lee has over 13 years of diversified civil, sanitary, mechanical and process engineering and design experience with water and wastewater infrastructure engineering projects. His experience includes facility investigation and evaluation, analysis and design, and construction phase engineering services for wastewater and water treatment plants, booster pump stations and lift stations, force mains and other water and wastewater conveyance and collection systems. Through a wide variety of water infrastructure engineering projects, Sam has acquired diverse design and discipline coordination skills. His recent experience includes detailed condition assessment of water and wastewater treatment plants.

Registration
Professional Civil Engineer,
CA #C78939

Education
MS Environmental
Engineering, University of
Southern California
BS Environmental
Engineering, Yonsei
University, Korea

Representative Project Experience

North and South Headworks Upgrades, Hill Canyon Wastewater Treatment Plant, City of Thousand Oaks. Project Engineer for engineering, preliminary design report, final design and engineering services during construction for rehabilitation and upgrading of the North and South Headworks at the 14.5 mgd Hill Canyon Wastewater Treatment Plant. The rehabilitation included replacement of the augers with mechanically-cleaned bar screens and screenings compactors, rehabilitation of grit removal systems including installation of new air and grit pumping systems, addition of walkways and grit tank covers, and upgrading of electrical and control systems. The rehabilitation of the south headworks included replacement of the existing Infilco Degremont climber screens with Huber step screens and piping modification, improvements to the screenings conveyors and compactors, and upgrading of the electrical and control systems.

Holtville Wastewater Treatment Plant Improvements Project, City of Holtville. Project Engineer for an \$11 million project to upgrade the existing 0.85 mgd secondary treatment plant consisting of headworks, two primary clarifiers, a trickling filter, three secondary clarifiers, three continuous upflow DynaSand filtration units, UV disinfection, aerobic sludge digesters, and sludge drying beds. The upgraded plant includes a new headworks with a septage receiving facility, new grit removal, a new Biolac activated sludge basin with two integral secondary clarifiers and aeration blowers, mechanical sludge dewatering and drying beds, a new operations/laboratory building, and a new MCC building. The existing plant's electrical system is a 220V system, which will be upgraded to 480V with a new substation fed by Imperial irrigation District.

Earl Schmidt Filtration Plant (ESFP) Washwater (WW) and Sludge System Improvements, Castaic Lake Water Agency. Project Engineer for \$7.5 million upgrading and improvements at the 56 mgd ESFP which treats State Project Water. WW from clarifiers and filters are stored in WW basins and pumped to the WW treatment facilities. The California DPH Cryptosporidium Action Plan requires a 2 NTU recycled water turbidity limit and regulates the total recycle water flow to be less than 10% of the plant flow. This project is to satisfy the DPH rule and Jay evaluated the WW system and identified the necessary system improvements. The project design included two new 620,000-gallon capacity WW basins with automatic sludge scrapper system and floating decanters, a WW wet well, upsizing of conveyance piping, a new sludge thickener & drying bed, electrical, and various site improvements.

Sedimentation Basins 1 through 12 Rehabilitation, Point Loma Wastewater Treatment Plant, San Diego. Project Engineer for Primary Sedimentation Basins 1 thru 12 Rehabilitation Design-Build Project at the 240 mgd wastewater plant. The 12 sedimentation basins were constructed under five separate construction contracts from 1962 through 1996. Work includes replacing 36 longitudinal and 12 cross collectors with new standardized sludge collection systems. The project also includes detailed inspection of each drained basin, repair of damaged concrete and/or coatings, and modification of the scum spray actuator system.

SAM
LEE, PE
Project Engineer
(continued)

Sand Canyon Pump Station Pump Station (SCPS) Reliability Upgrades, Castaic Lake Water Agency. Project Engineer for a fatal flaw/reliability analysis and subsequent design of an emergency power generation system. SCPS, built in 2006, has six 900 hp vertical turbine pumps. An in-depth reliability engineering analysis recommended a 1,750-kW standby generator cooled by the product water. The \$4.5 million project included architectural, landscaping, structural, mechanical, electrical, plumbing (MEP), security and communications, and civil, paving, and grading design.

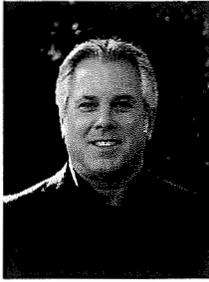
Earl Schmidt Intake Pump Station Modifications Project, Castaic Lake Water Agency (CLWA). Staff engineer for evaluation of the causes of the misalignment of large pump (caused by discharge header settlement) and an analysis of various remedial alternatives. Subsequent design included installation special spool fittings to accommodate the misalignment, installation of flexible pipe connectors to accommodate the existing and future pipe settlement, and Installation of ball joints in the pump discharge piping before the discharge header connection.

Pederson Reservoir Seismic Upgrade and Rehabilitation, City of Thousand Oaks. Project Engineer for the condition assessment, seismic evaluation and structural retrofit of the 3.0 MG capacity partially buried concrete Pederson Reservoir. Utilizing a raft, LEE & RO performed an interior inspection while the reservoir was in service. The seismic evaluation identified structural deficiencies that must be addressed to meet the current seismic loads requirements under the 2010 California Building Code. The condition assessment concluded that the existing structure, with strategic modifications and retrofits, is still capable of providing service for another 25 years with proper maintenance and periodic inspections.

Rehabilitation of Industrial Lift Station, City of Thousand Oaks. Project Engineer for preliminary design, detailed design, and construction support services for the rehabilitation of the existing abandoned Industrial Lift Station. The project also included rehabilitation through lining of 3200 LF of an existing abandoned 10-inch ACP force main. Design tasks included analysis and comparison of alternative pump upgrade options, alternative pipeline lining options, as well as required structural modifications to the existing lift station facilities to implement the desired upgrades.

Page Siphon Replacement and Sewer Rehabilitation, City Thousand Oaks. Project engineer for investigation, design and construction inspection for emergency replacement of dual 6-inch barrel siphons and connecting sewers for City of Thousand Oaks. The emergency repair work was carried out by working round-the-clock over a two-week period.

Interceptor Sewer Improvements Phase 3, Project V1, City of Thousand Oaks. Project Engineer for preliminary design, final design, and engineering services during construction to replace approximately 1,000 LF of 15-inch diameter Asbestos Cement Pipe sewer with 18-inch diameter PVC in Thousand Oaks Blvd. In addition to pipeline plan and profiles, LEE & RO provided detailed sewer bypassing plans and traffic control plans. The design utilized the existing manholes, which were rehabilitated to accommodate the new larger diameter pipe.



RICK LISKOW, PMP

Construction Support Lead

Rick Liskow has 25 years of experience in the engineering and design of municipal water and wastewater facilities, pump stations, and emergency power generation system supporting treatment plants and pump stations. As a certified PMP, Rick has served as project manager and project engineer on numerous water, wastewater, and water reclamation facility projects for municipalities and water agencies. Rick has extensive design management experience through coordination of various engineering disciplines – civil, mechanical, piping, electrical, and instrumentation and controls (I&C) engineering. He also provided engineering services (during construction) for many plant and pump station projects - shop drawing/equipment submittal review, response to RFIs, construction coordination, change order reviews and project documentation. Rick has considerable engineering & design experience with mechanical equipment, piping & valves, and related electrical and I&C components.

Registration

Project Management
Professional, Project
Management Institute,
No. 473037

Education

BS, Petroleum
Engineering, University
of Texas at Austin
JD, South Texas College
of Law, Houston

Representative Project Experience

Water Reclamation Plant No. 10 (WRP 10) Upgrading and Rehabilitation, Coachella Valley Water District, Palm Desert. Project Manager for a \$5 million upgrading and rehabilitation project at the 18 MGD capacity WRP 10. Project scope included replacement of RAS and WAS pumps and VFDs and electrical system upgrading; replacement of 54 slide gates in the aeration basins and mixed liquor distribution channels; replacement of secondary scum skimmers and scum pump stations; installation of channel agitation systems for mixed liquor distribution channels; hydraulic/weir modification of the RAS system from the secondary clarifiers to the RAS pump stations; replacement of tank drain valves; and associated electrical and control systems.

Flow Equalization and Effluent Monitoring Project, Regional Water Recycling Plant No. 5 (RP-5), Inland Empire Utilities Agency, Chino. Rick is the Project Manager responsible for overseeing the design and construction of improvements and upgrades to various RP-5 plant processes, including replacement of sodium bisulfite and sodium hypochlorite chemical metering pumps and instrumentation improvements at the tertiary chemical facility, flow metering and chemical injection improvements to the chlorine disinfection system in the chlorine contact basin, and optimization of the use of recycled water by automating bypassing of peaks flows to the equalization basin. Engineering services include all civil, mechanical, structural, process, and electrical and instrumentation designs.

Wastewater Treatment Plant Upgrading Project, City of Holtville. Rick is the Project Coordinator and Assistant Project Manager for this \$11 million project that includes a preliminary design report and final design of major upgrades to the existing 0.85 mgd secondary treatment plant. Improvements include a new operations building, new septage receiving station, new headworks, new secondary aeration basin with integral clarifiers, conversion of existing secondary clarifiers for plant water service, rotary drum thickener with polymer injection system, and sludge drying beds, filtration units, UV disinfection, and aerobic sludge digesters. The existing plant's electrical system was upgraded from a 220V system to 480V with a new electrical service fed by Imperial irrigation District.

Air Process Blower Switchgear and Standby Generator Project, Water Reclamation Plant No. 10 (WRP 10), Coachella Valley Water District. Rick is the Project Manager responsible for overseeing the electrical design and construction of CVWD's Air Process Blower Switchgear and Standby Generator Project at WRP 10. A new 1500kW emergency standby generator and new 2000A switchgear was added to relieve the burden of the three new 540 HP secondary aeration process blowers connected to existing emergency standby generators G1 and G2. The design includes an automatic transfer switch for switching the load from utility power to generator power and a new load bank.



RICK
LISKOW, PMP
Construction
Support Lead
(continued)

Chloramine Disinfection Projects, County of Los Angeles. Project engineer for the design of various chloramine disinfection systems for LA County Waterworks District. Utility sites constructed by developers supply and disinfect well water to several developments in the Lancaster and Palmdale area. The project included detailed design of the chloramine disinfection systems, including breakpoint chlorination at several locations, chlorine and ammonia storage and feeding systems, sampling and testing, electrical, instrumentation and controls, and SCADA interface. The project scope also included engineering support services during construction.

Oxidation Retrofit Project (ORP), Skinner Filtration Plant, Metropolitan Water District of Southern California. Project Manager for the engineering support services during construction for the \$130 million Skinner ORP and WWRP No. 3 project. Engineering support services include various engineering and design disciplines (process, mechanical, HVAC, plumbing, fire suppression, electrical, and instrumentation & controls) for the ORP Chemical Facilities (sulfuric acid, hydrogen peroxide, and caustic chemical storage and feeding systems) as well as the electrical, instrumentation and controls design for WWRP No. 3.

Acton and Antelope Valley Disinfection Conversion Project, County of Los Angeles. Project engineer for a \$7 million project converting chlorine disinfection systems to chloramines disinfection for LA County Waterworks District's eighteen (18) domestic water well facilities located in the Lancaster area. The project included (1) replacement, upgrading, and rehabilitation of existing chlorine systems (sodium hypochlorite, 150 lb. cylinder banks, 1-ton cylinders, and chlorine scrubbers); (2) addition of aqueous ammonia storage and feed systems; and (3) electrical, chemical feed controls, and SCADA system integration.

Oxidation Retrofit Project (ORP), Weymouth Filtration Plant, Metropolitan Water District of Southern California. Project Engineer for preparation of preliminary design report for chemical storage and feeding systems (caustic, sulfuric acid, hydrogen peroxide and sodium hypochlorite) supporting the \$120 million ORP project at the Weymouth Filtration Plant.

Electrical Facilities Inspection, Testing, Maintenance and Arc Flash Study, Mesa Water District. LEE & RO teamed with Schneider Electric Engineering Services, LLC (SEES) to address Mesa Water District's electrical engineering and field service needs. Rick was Project Manager responsible for overseeing a systematic evaluation of Mesa Water's electrical equipment and development a long-term maintenance plan to ensure safe, reliable, and maximum service life for electrical equipment at the Mesa Water facilities. LEE & RO provided supervision of Schneider's inspection and testing activities (including but not limited to switchboards, motor control centers, panel boards, disconnects, variable frequency drives, generators and transfer switches, and programmable logic controllers) per ANSI/NETA ATS-2009 edition. The inspection and testing team also gathered equipment data for the electrical system computer modeling for Fault, Coordination and Arc Flash studies.

Tertiary Water Recycling Plant Expansion, Water Reclamation Plant No. 7, Coachella Valley Water District, CA. Project Manager for the preliminary design report, final design documents, and bidding/construction management services for the California Title 22 tertiary water recycling plant capacity expansion from 2.5 mgd to 5 mgd. The \$9 million project included increasing the capacities of filter feed pumping, addition of a new rapid mix tank, flocculation basins, dual media filters, chlorine contact tanks, chlorine storage and feed systems, and recycled water pumping. All existing and new pumps are designed with variable frequency drives (VFD)



JAMES POLLOCK, PE

Process & Mechanical Engineer

James Pollock has 16 years of experience in project management, planning, design, and construction support of municipal pumping and treatment facilities. James' passion is for hydraulics having designed pumping facilities ranging in size from 1,000 gpm to over 500 mgd. James has also managed many rehabilitation and expansion projects and is skilled at recognizing potential construction issues and how to minimize operational disruptions during construction. James is a seasoned designer with expertise in preparing contract drawings, technical specifications and technical reports. James' experience includes multiple projects where he served both as project manager in planning and design and later as the client's resident engineer and representative in construction, giving him perspective to manage a project from start to finish affording insight to constructability, cost effective methods of construction and pitfalls that can be avoided by through planning and design.

Registration

Civil Engineer,
CA #C70861

Education

B.S. - Civil Engineering,
University of California,
Davis

Representative Project Experience

Hansen Sanitary System Sewer Upgrades (Hansen Lift Station), City of Tracy. Project Manager for upgrades to the existing Hansen Lift Station, increasing its capacity from 2,700 gpm to 4,600 gpm. Improvements at the lift station include replacement of the existing submersible pumps with larger capacity pumps, two new magnetic flow meters in the station's existing space limited valve vault and addition of transient surge tank to protect against "water hammer" and damage of the pumping equipment. The rehabilitation also required replacement of the motor control center and PLC while bypass pumping during reconstruction.

Wastewater Treatment Plant Expansion – Phase III, City of Patterson. Project Manager for expansion of the City's wastewater treatment facility. The new activated sludge treatment system includes an extended air oxidation ditch, 80-foot circular secondary clarifier, three aerobic digesters, RAS/WAS pump station, scum pump station, sludge thickening, thickened sludge pump station, stormwater equalization basin, sludge storage facility and photovoltaic solar array to provide power to the treatment process.

Primary and Grit Handling Areas Rehabilitation Project, Sacramento Regional County Sanitation District. James was Project Engineer for this rehabilitation project which included the replacement of the existing steel grit slurry piping with replacement runs of acrylonitrile-butadiene-styrene (ABS), modifications to the grit overflow line, replacement of the existing grit classifier dewatering system, and replacement of the existing grit ejector system that transports dewatered grit to the storage and disposal area.

Wastewater Treatment Plant Expansion and Upgrading, Valley Sanitary District, Indio. Project Engineer/Lead Mechanical Engineer for a \$ 45 million plant expansion and rehabilitation program designed to increase the plant capacity from 8.5 to 13.5 mgd and to replace aged plant facilities. The program consists of three major project components: \$25 million secondary treatment and chlorination & dechlorination project and \$19 million primary clarifier and sludge digester project. The major process units include two new influent pumps, two new rectangular clarifiers; expansion of aeration basins, new aeration blowers, three new 95-foot diameter secondary clarifiers, new chlorine contact tanks with hypochlorite/bisulfite systems, new 54-inch outfall, gravity belt sludge thickening, anaerobic digestion, belt-press dewatering, and sludge drying beds.

Bowman Sodium Hypochlorite Conversion Project, Placer County Water Agency, Auburn, CA. Project Manager for a \$1.1 million disinfection conversion project from gaseous chlorine to liquid sodium hypochlorite. The Bowman WTP consists a 5 mgd capacity conventional plant and a 2 mgd package plant. Chlorine gas is used for disinfection at the conventional plant, while hypochlorite is used at the package plant. The existing gas system was removed and new sodium hypochlorite facilities, including two 2,000-gallon capacity storage tanks, five metering pumps, feed piping, and electrical and control systems, were installed. Work also includes programming and integration to the existing SCADA system.

JAMES
POLLOCK, PE
Process &
Mechanical Engineer
(continued)

Upgrade and Replacement of Sodium Hypochlorite System – West County Wastewater District - Richmond, CA. James was Project Manager for a \$1 million sodium hypochlorite upgrade consisting of a condition assessment, preliminary design, detailed design and engineering services during construction (ESDC). Sodium hypochlorite facilities include two contact basins, three feed pumps, two 10,500-gallon storage tanks and residual analyzer sampling. The design included reorganizing metering pump room; replacement and simplification of chemical equipment, piping and valves; replacement of aging chemical metering equipment, electrical, instrumentation and safety systems; and seismic restraints for equipment and piping.

Wastewater Treatment Facility Master Plan, Valley Sanitary District. Project Engineer for development of a master plan for a 25-year by way of three expansions totaling more than \$98 million in capital improvements. The master plan was required to identify many planning considerations, most notably the NPDES permitting and future regulatory environment and Salton Sea Water Management Plan. The master plan also dealt with the effluent toxicity requirements as well as potential future nutrients limitations on nitrogen and phosphorus. The master plan covered the District's goal to produce Class A Biosolids and planning for utilization of digester gas and power cogeneration facility.

Biosolids Dewatering Project, Water Quality Control Facility, City of Patterson. Project Manager and provided evaluation, design and construction management services for a \$2 million upgrade. For more than 40-years the City used solar drying beds to dewater solids. Limited beds resulted poor drying performance and resulted in a NPDES violation. Options were evaluated, and a life cycle analysis was prepared for belt press, centrifuge and rotary drum thickener. The analysis determined that a centrifuge would result in the lowest life cycle cost. Savings from hauling drier solids produced by the centrifuge offset higher power and maintenance costs. The design was "fast-tracked" to meet the compliance schedule stipulated by the Regional Board. James was also responsible for construction management and served as the City's representative during construction and startup.

Lawrence Trunk Sanitary Sewer Manhole Rehabilitation Project, City of Sunnyvale. Project Engineer for evaluation of structural conditions of 73 manholes on one of the City's major trunk sewers, including video and visual inspection of expressway facilities. He assisted in design of upgrades, after reviewing the inspection videos and logs. The contractor selected for this work commented that their price was very competitive, as this was the most complete and thorough set of plans they had bid.

Bijou Commercial Core Lift Station, Cardno/Entrix, City of South Lake Tahoe. Project Manager for design and construction support services for a station as part of the City's Bijou Area Erosion Control Project. This project was to capture stormwater and snowmelt in the South Lake Tahoe commercial corridor and pump that water two miles away from the lake where if not collected sediment and pollutants would jeopardize lake clarity and wildlife quality. The pump station's 4,500 gpm capacity is configured in a lead, lag, jockey configuration with variable frequency drives. The pump station was located in an alley behind a commercial shopping center and consequently had to be designed to withstand loading from snow plows. The design also included a surge protection to protect the 12-inch force main against transient surge.

Stormwater Management and Pump Station Design, Sacramento Regional County Sanitation District, Elk Grove. Project Engineer for a \$7 million upgrade to the stormwater pump station located at the treatment plant. In the past storm water from the station was discharged to the nearby Laguna Creek under NPDES permit. Pre-design included a drainage study of the 140-acre facility, hydraulic analysis of the stormwater collection system, and an evaluation of the existing mechanical and electrical equipment at the 52,000 gpm pump station. The design included approximately 2000 feet of 36-inch HDPE force main, new outfall structure, and a stormwater detention basin. Mechanical improvements to the pump station included low flow jockey pumps and replacement of the ventilation system in the wet well and dry pit. Electrical upgrades included replacement of the existing electrical and control systems, including switch gear, MCC, PLCs and construction of a new electrical building.



AMRITENDU MAJI, PE

Civil Engineer

Amritendu Maji is a Civil Engineer and Project Manager over 20 years of progressive experience in the planning, design, construction administration of public works projects. He has been responsible for preparing plans and specifications, construction cost estimates, bid documents, and permit applications for site development, roadways, water & wastewater conveyance and distribution facilities including pipelines, pump stations and reservoirs, and stormwater and flood control facilities. He has considerable experience in hydraulics and hydraulic modeling, as well as preparation of feasibility studies and technical reports. He has provided constructability review and QA/QC of technical reports, plans & specifications, construction cost estimates, and other bid documents. He has provided construction administration and support services including construction site visits, conducting progress meetings, review of shop drawings, respond to RFIs, analysis & preparation of change orders, start-up & commissioning and review & approval of contractors' pay requests and project closeout. He also has considerable experience in the preparation of permits including the Federal Section 404 (Clean Water Act) for work in wetlands, Section 408 (Rivers and Harbors Act) for federally constructed structures like levees and floodwalls, and permits from the State Transportation and Development offices for work in and around State and Federal Highways etc.

Representative Project Experience

UV Disinfection System Replacement, South Bay Water Reclamation Plant, City of San Diego. Project Engineer for the for the replacement of the UV disinfection system located at South Bay Water Reclamation Plant (SBWRP). The existing Trojan UV4000 systems have been identified by the City to be beyond their useful life and the units do not meet the current energy efficiency standards. The new system designed by LEE & RO will reduce the operations and maintenance costs and will allow the City to apply for SDG&E energy credits based on the power savings by using the new system in lieu of the existing system. The total anticipated construction cost is estimated to be around \$2.6 million.

Pump Station 2 (PS2) Power Reliability Upgrade and Power Generation Project, City of San Diego. Civil Engineer for design and construction of a \$56 million power systems upgrading project. PS2 has a pumping capacity of 432 mgd and houses six 2,250 HP electric motor driven pumps and two 2,400 HP engine driven pumps. This project is to replace two engine driven pumps with 2,250 HP motor driven pumps, install two 3,000 kW natural gas engine driven generators (prime power), and two 4,000 kW diesel engine driven emergency generators in an 8,000-sq. ft. and 40 ft. high building (providing a total of 14 megawatt of power). The new generation system will power 2,500 HP sewage pumps and mitigates damaging hydraulic surge on the force mains. Project challenge`s included permitting with the San Diego County Air Pollution Control District, power feed arrangement with SDG&E, meeting EPA Class I Reliability requirements, and development a tall large tall building on a very tight and constrained site adjacent to Mission Bay right next to the San Diego Airport.

Buena Outfall Force Main, Phase III, City of Vista. Project Engineer for an \$8 million, 4.5-mile-long, 24-inch HDPE gravity sewer and force main which will interconnect to the existing Buena Outfall force main east of El Camino Real. The existing City of Vista sewer pump stations serve the Buena Outfall force main, which conveys wastewater to the Encina Water Pollution Control Facility in the City of Carlsbad. The project is unique due to the alignment topography along Palomar Airport Road, which is the primary corridor of the region. The project also includes two vortex drop manholes and active and passive odor control scrubbers (bioreactors). The Project includes one jack and bore trenchless segment under El Camino Real. The Outfall hydraulically transition from a pressure force main to a gravity sewer two times within the 4.5-mile alignment. This work also includes obtaining Caltrans permits for work in their rights of way.

Registration

Civil Engineer,
CA #87036;
Louisiana #28553;
Mississippi #15273

Education

University of Arizona,
MS Engineering
Mechanics

University of
Southern Illinois, MS
Civil Engineering

Jadavpur University,
BS Civil Engineering

AMRITENDU
MAJI, PE
Civil Engineer
(continued)

Sludge Pump Station Upgrading, South Bay Water Reclamation Plant (SBWRP), City of San Diego. Project Civil Engineer for engineering, design and construction support services for installation of sludge pumps and grinders at SBWRP, located at 2411 Dairy Mart Road. Operations Staff has pre-purchased two sludge pumps and two grinder pumps to replace five air-driven sludge pumps. In addition, two existing water-cooled air compressors need to be replaced with two air-cooled air compressors. Developed civil & mechanical design and assisted with pump and grinder control strategies, and designed piping and valves.

Pump Station 65 Upgrading, City of San Diego. Provided construction support services for this \$5 million pump station upgrading project. Soft starters will be replaced with variable frequency drives, existing 400-hp motors will be replaced with new 500-hp motors, and a third new 500-hp pump will be installed to increase capacity of the station to 25 mgd. The SCADA system will be upgraded, and all new equipment will be integrated. Reviewed shop drawings and equipment submittals.

Cunningham Way Tank No.1 Seismic Retrofit, City of San Bruno. Civil Engineer for replacement an aging 2.5 MG steel tank located within 1 mile of the San Andreas Fault. Preliminary design weighed three different alternatives for the City which included analysis of seismic retrofit of the existing steel tank, or the construction of Type I and Type III prestressed concrete tanks. The project includes new piping and appurtenances such as a new seismic valve, flexible expansion joints (EBA Flextend), new reservoir mixing system, new tank access stairway & man-ways, and interior access ladders. Site security features included as anti-climb fencing, CCTV monitoring, and intrusion alarms.

Water Supply Facility Upgrading Projects, States of Louisiana and Mississippi. Served as Project Manager for: New Chlorination Facility & Building at the East Bank Water Treatment Plant, Jefferson Parish (pre-engineered metal building and associated piping and site work); Security Improvements at Mississippi River Intake Structures for Jefferson Parish Water Treatment Plant (installation of dolphins and buoys); Replacement of Hurricane Katrina Related Waterline Replacement Program in the French Quarters, New Orleans (line sizes varied from 8- to 30-inch in diameter); 24-inch dia., 5,300 feet long water main along the East Judge Perez Drive for St. Bernard Parish; New 500,000 gallon capacity elevated water storage tank in Reggio for St. Bernard Parish; and three (3) new 1 million gallon elevated water storage tanks in Biloxi. As many of these projects were in wetland areas, Federal 404 permits were prepared and obtained to allow work in these areas.

Streets and Utilities Reconstruction Projects, City of New Orleans. Served as the Project manager for various street reconstruction projects: N. Galvez Street (Tennessee to Delery, 5,400 LF), Madrid Street (St. Bernard to Cartier, 800 LF), Soldiers Street (St. Bernard to Cartier, 800 LF), Mendez Street (St. Bernard to Cartier, 600 LF), Desire Street (N. Dorgenois to N. Claiborne, 3,500 LF), Royal Street (Caffin to Charbonnet, 650 LF), South Prieur Street (Upperline to Napoleon, 950 LF), N. Johnson Street (Elysian Fields to Franklin, 2,800 LF), N. Prieur Street (St. Roch to St. Ferdinand, 1,800 LF), and N. Derbigny Street (Elysian Fields to Franklin, 2,800 LF). Work comprised of replacement of subsurface utilities including gravity sewer (6- to 12-inch in diameter), water mains (8- to 12-inch in diameter) and storm drain (21- to 54-inch in diameter), concrete curbs and gutters, roadway pavement (both asphalt and concrete), sidewalks, handicapped accessible curb ramps and driveways.

Underground Infrastructure Improvements for the Veterans Administration Medical Center (VAMC), City of New Orleans. Project Engineer for including replacement of subsurface utilities including gravity sewer (2,000 LF of 8-inch), sewage force main (4,000 LF of 24-inch) water mains (2,000 LF of 8-inch, 3,800 LF of 12-inch and 600 LF of 16-inch) and drain (12- to 54-inch in dia.), concrete curb and gutter, concrete roadway pavement, sidewalks, handicapped accessible curb ramps and driveways. Work also included jack and bore of 24-inch steel casing and cast in place pipe (CIPP) lining of 24- and 36-inch trunk sewers. The total construction cost was \$14 million. This work included coordination with the Veterans Administration and the Louisiana State Facility Planning and Control Offices.





ROBERT MERCADO, PE, PACP, QSD/QSP

Civil

Robert has over 18 years of engineering, construction management, resident engineer, and cost estimating experience. He has successfully completed CM & resident engineering assignments for pipeline, and pump station projects for public agencies throughout Southern California including the West Basin Municipal Water District, City of Burbank, City of Long Beach and Castaic Lake Water Agencies. Robert has also served as the construction cost estimator for LEE & RO pipeline projects. Before Robert joined LEE & RO in 2006, he also worked as a construction manager for Northwest Pipe (a large dia. water transmission main supplier) and Clark Pacific, a precast concrete products supplier. His CM services experience and responsibilities include construction and schedule coordination, quality control, owner representation, field documentation, progress payment reviews, facility startups, and permit coordination. Cost estimating experience includes large and small diameter water mains, trunk sewers, and force mains including pipe rehabilitation and lining projects. Robert also has considerable experience with street and traffic signal repairs and paving restoration.

Representative Project Experience

Anza Avenue Lateral and Imperial Avenue Lateral Project, West Basin Municipal Water District. Lead Inspector and CM services for the USACOE led project in the fall of 2009. He provided construction inspection and testing coordination and interfaced with West Basin and USACOE staff and the City inspectors. The Anza Avenue Lateral Project included the installation of 14,500 lineal feet of 8-inch, 6-inch, and 4-inch diameter recycled water pipeline within the City of Torrance. The Imperial Avenue Lateral Project included the installation of 4,700 lineal feet of 6-inch diameter recycled water pipeline, providing recycled water to parks and greenbelt for landscape irrigation application. He interacted successfully with agencies such as Caltrans and LA County Flood Control and the Cities of Torrance and El Segundo.

Sewer & Water Main Upsizing Project for Gateway Village Project, Moulton Niguel Water District, Laguna Hills. Resident Engineer/Inspector for the Blackwood Real Estate for the redevelopment project which included 351 residential units, a five-level parking garage and 6,000 sq. ft. of retail space. The project element included upsizing existing 8-inch water main to 12-inch water main; bypass water line (high-line), upsizing existing 10-inch sewer main to 15-inch sewer main; sewer bypassing during upsizing; and installation of new segments of water main and sewer. The construction took six months and work was performed at night from Sunday through Friday.

Rio Vista Flow Regulating Station and Valve Modification Project, Castaic Lake Water Agency, Santa Clarita. Construction Manager/Resident Engineer for a \$2 million project consisting of replacement of a 72-inch butterfly modulating valve, and installation of new pipes, valves and appurtenances. The work also included removal of a chain link fence and gate, concrete vault, water pipeline, valves, and appurtenances; site clearing and grading; construction of concrete masonry unit walls with access gates, pavement, and vault modifications; installation of new water pipelines, valves and appurtenances; installation of sewer and drain pipelines; electrical work; instrumentation and control work; disinfection work; and startup and testing of the valves. The design was prepared by others and Robert performed design review and validated cost estimate.

Carson Mall Lateral, West Basin Municipal Water District, El Segundo. Robert provided CM and inspection services for the Carson Mall Lateral project that included construction of 4,000 LF of 12-inch diameter recycled water lateral for the Carson Mall development under the direction and requirements of the US Army Corps of Engineers. CM services included coordination of specialty inspections and materials testing, community relations interaction and coordination with the cities of Torrance and Carson, Torrance Unified School District and Southern California Edison.

Registrations:

Civil Engineer,
California #C79646
CASQA Certified

Qualified SWPPP Developer
(QSD) and Practitioner
(QSP), #23971

NASSCO Pipeline
Assessment Certification
Program (PACP), #U-614-
06021492

Education:

BS, Civil Engineering,
California State University,
Los Angeles



ROBERT
MERCADO, PE,
PACP, QSD/QSP
Civil
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Beachwood / Sparks Sewer Force Main and Pump Station Upgrade Project, City of Burbank. Cost Estimator / Resident Engineer for this \$9.5 million force main and lift station construction project. Prepared preliminary and final construction cost estimates and provided submittal review, resolution of field construction issues, and public outreach. The project includes approximately 12,000 linear feet of 24-inch HDPE pipe along the Sparks-Chandler alignment, replacement of three dry-pit, 150 HP submersible sewage pumps, construction of a new valve vault, removal and replacement of valves and appurtenances, recoating the pump station wet well and upgrading of electrical and control systems. The project also includes construction of new sewer maintenance manholes, air relief valves, blow-off assemblies, and tie-in to the new 24-inch force main.

Various Sewer Replacement and Rehabilitation Projects, City of Long Beach. Provided construction management, resident engineering, and construction inspection services for various projects: 12-inch dia. VCP sewer was replaced with 15-inch dia. VCP sewer and five manholes were replaced in the 28th Street; and replaced 8-inch sewers with 10-inch, 10-inch sewers with 12-inch, removing tree roots, and lining 10-inch sewers with CIPP, spot repair of sagging sewers and rehabilitating existing manholes in the commercial and residential areas along the 10th Street/Lime Avenue and 15th Street/Gardena Avenue. Total length of sewers replaced and rehabilitated was approximately 10,000 feet.

Pederson Reservoir Seismic Upgrade and Rehabilitation, City of Thousand Oaks. Provided CM & inspection services for the rehabilitation of a 3 MG capacity (242 feet x 110 feet x 24 feet high), partially buried concrete structure. Reservoir needed major rehabilitation to meet the seismic loads required under the 2010 California Building Code. The internal inspection revealed numerous cracked and spall concrete and exposed rebar on the columns, as well as active corrosion of rebar within the concrete at columns, walls and floor. Work required lead paint removal on the exterior of the reservoir, application of a polyurethane coating to the interior surface of the reservoir wall, erection of an intricate scaffold design prior to the unloading and repair of the columns using carbon reinforced fiberglass wrap to develop the require hoop strength to prevent the column concrete from cracking when subjected to seismic stress. Total construction cost was \$1.2 million.

CM / Inspection Services, Nitrification Product Water Tank Repair Project at the Carson Regional Water Recycling Plant Facility (CRWRF), West Basin Municipal Water District, El Segundo. Construction Manager / Inspector for the Nitrification Tank Rehabilitation and Recoating project. This fast track project needed significant coordination with United Water, the West Basin MWD's operations firm and the British Petroleum (BP), the ultimate recycled water user. The coordination included change in repair and recoating methods based on the full inspection of the tank after it was taken out of service. Significant CM decisions were required to develop consensus on the repair method changes while mitigating change order cost and fast track schedule constraints. Specialty inspection included coating including surface preparation, welding and structural elements.

CM and Inspection Services for Church Street and Little Third Bypass Sewer Project, EVWD. Robert provided resident engineering and inspection services for sewer capacity improvements located in the City and County of San Bernardino and the City of Highland. The projects consist of two separate reaches: Reach 1 includes the construction of 900 lineal feet of 12-inch PVC sewer pipe, three (3) new manholes and re-construction of two existing manholes. Reach 2 includes the construction of 4,400 lineal feet of 15-inch PVC sewer pipe, fifteen (15) new manholes and reconstruction of two existing manholes.





M. STEVE RO, PE

Principal-In-Charge

M. Steve Ro, one of the firm's two founding partners, has over 35 years of municipal water and wastewater systems engineering experience, including conveyance, treatment, reclamation, and reuse systems. He has served as lead design engineer, project engineer, project manager, project director, construction manager, and QA/QC officer on many treatment plant capital improvement projects with construction costs ranging from \$1 million to \$60 million. He is an effective project manager with multidiscipline engineering skills (treatment process, hydraulics, mechanical, electrical, instrumentation & controls, and structural), and has extensive project management, planning, design, value engineering, and construction management experience for a wide variety of municipal clients.

Registrations

Civil Engineer, CA
#C25010

Diplomate, American
Academy of Environmental
Engineers

General Engineering
Contractor, CA, #681020
(Hazardous Class)

Education

M.S. Sanitary Engineering,
U.C. Berkeley

B.S. Civil Engineering,
Seoul National University

Representative Project Experience

Wastewater Treatment Plant (WWTP) Upgrading, City of Brawley. Principal in Charge for \$24 million in upgrades from aeration ponds to full secondary treatment with nitrification/denitrification capability for the 5.9 mgd Brawley WWTP. Responsibilities included process analysis and production of a Facilities Plan for SRF loan funding in addition to development of a preliminary design report and construction plans and specifications. LEE & RO obtained a \$10 million grant from the ARRA Fund. The upgraded plant facilities include grit removal, activated sludge, UV disinfection, sludge thickening, centrifuge sludge dewatering, and a Parkson Solar Greenhouse designed to produce Class A Biosolids.

Wastewater Treatment Plant Capital Improvements and Rehabilitation Projects, Orange County Sanitation District, Fountain Valley. Project Manager and/or Project Director for numerous plant expansion and upgrading projects (aggregated construction value of over \$150 million) for the 175 mgd Treatment Plant 1 and 200 mgd Treatment Plant 2. Representative projects include \$42 million, 60 mgd primary plant expansion at Plant 1; \$12 million primary clarifier addition and rehabilitation project at both Plants; \$10 million anaerobic digester rehabilitation project at Plant 2; \$2.5 million odor scrubber modification project at both Plants; \$7 million secondary process upgrading at Plant 2; \$5 million pipeline rehabilitation project; \$35 million wastewater pumping station project; and \$4.5 million headworks/grit removal facility rehabilitation at Plant 1.

Wastewater and Water Systems Capital Improvement Projects, Department of Public Works, City of Los Angeles. Since 1981, Steve served as Project Manager or Principal-in-Charge for numerous capital improvement projects: On Call Engineering Services (Fee Ceiling \$2 million) for the Wastewater Collection System Engineering Division; \$35 million Seven Air Treatment/Odor Control Facilities for Interceptor Sewers; \$5 million Los Angeles "Greenbelt" Project which consisted of a recycled water pump station at the LA-Glendale Water Reclamation Plant; \$7.5 million headworks and primary sedimentation improvement project including ferric chloride for primary and ferrous chloride system for digesters; \$6 million LA Zoo wastewater and storm water handling facility; onsite staff-augmentation services for the Hyperion Energy Recovery/Solids Treatment and Resource Recovery programs for the Environmental Engineering Division; Advanced Planning Report project, which was a comprehensive wastewater facilities planning document for Year 2070; Preliminary Design Report for the Glendale Burbank Relief Sewer; and alignment study for the East Central Interceptor Sewer.

Wastewater Treatment Plant Expansion and Rehabilitation, Valley Sanitary District, Indio. Project Manager / Director for a \$45 million plant expansion and rehabilitation program designed to increase the plant capacity from 8.5 to 13.5 mgd and to replace aged plant facilities. The program consists of three major project components: \$25 million secondary treatment and chlorination & dechlorination project and \$20 million primary clarifier and sludge digester project. The major process units include two new influent pumps, two new rectangular clarifiers; expansion of aeration basins, new aeration blowers, three new 95-foot diameter secondary clarifiers, new chlorine contact tanks with hypochlorite and bisulfite systems, new 54-inch outfall, gravity belt sludge thickening, anaerobic digestion, belt-press dewatering, and sludge drying beds.



M. STEVE
RO, PE
Principal-In-Charge
(continued)

Water Reclamation Plant Nos. 10, 7, and 4 (WRP10, WRP7, and WRP4) Capital Improvement Projects, Coachella Valley Water District. Project Manager for planning, design and construction management for a number of plant capital improvement projects: \$17 million Secondary Plant and Sludge Dewatering Facility at WRP4; \$10.5 million, 10 mgd Title 22 Tertiary Filtration Facility three pumping stations, and two reservoirs at WRP10; \$5 million activated sludge secondary plant rehabilitation at WRP10; \$1.2 million Headworks Renovation at WRP10; and \$5 million, 2.5 mgd secondary treatment plant and blower replacement at WRP7; \$9 million 5 mgd Title 22 Tertiary Water Recycling Facility at WRP7; and five wastewater lift station projects with a combined project cost of over \$10 million.

Wastewater Collection System Engineering, Wastewater Conveyance Engineering Division, Bureau of Engineering, City of Los Angeles. Project Manager/Principal in Charge for many collection system engineering projects such as Normandie Sewer Replacement Project consisting of 2,700 LF of new 39-inch VCP, junction structures and manholes; Lincoln and Sunset Sewer Rehabilitation Project consisting of 5,500 LF of 8-inch and 6-inch VCP; Predesign Report for the 4th Avenue/Slauson Sewer Rehabilitation Project consisting of 6,400 LF of 69-inch and 6,330 LF of 75-inch RCP sewer; Class A Cost Estimating for the Avenue 45 & Arroyo Drive Relief Sewer; a Benchmarking Study for CIPP Structural Liner Thickness Design Criteria; and Pilot Sonar and Laser Profiling for the Central Outfall Sewer Rehabilitation Project.

Headworks and Anaerobic Digester Improvement Projects, Point Loma Wastewater Treatment Plant, City of San Diego. Project Director for a \$21 million Headworks Improvements project, which included two new grit tanks, new grit processing/dewatering building, foul air collection and odor control facility, new agitation blowers, and chemical systems for advanced primary treatment; and \$12 million anaerobic digester improvement project, which included new mixing and heating system, new digester roofs, mechanical systems and piping modifications, and electrical and control systems.

Water Treatment Plant Improvements and Rehabilitation Projects. MWD of Southern California, Los Angeles. Program/Project Manager (since 2002) for numerous plant improvements and rehabilitation projects at the five water treatment plants (aggregate construction cost over \$175 million at 600 mgd Weymouth, 700 mgd Skinner, 600 mgd Jensen, 300 mgd Mills, and 500 mgd Diemer Plants): \$50 million new chlorine storage/containment and chlorination systems at Skinner, Jensen and Mills; \$20 million electrical system improvements at Weymouth; \$15 million electrical system for Weymouth Oxidation Retrofit Program (ORP) project; \$5 million chemical tank farms at Diemer; \$24 million Module 1 and 2 rehabilitation and chemical system improvement at Mills; \$7 million Washwater Reclamation Plant No. 2 improvements at Skinner; and \$15 million site electrical system improvements supporting the ORP and Module 7 projects.

Goldsworthy Desalter Project, Water Replenishment District of Southern California. Project Director for design and construction support services for the \$10 million, 2,100 gpm capacity Goldsworthy Desalter in Torrance, which employs two reverse osmosis treatment trains. The project also included raw water, product water, brine disposal pipelines, and chemical systems.



This Addendum was sent via email and posted on the City website. Please acknowledge receipt of this Addendum by signing and returning a faxed copy to 760/768-0992. Also include a copy of the Addendum in your proposal package.

Sincerely,



David Dale
City Manager

ACCEPTANCE OF ADDENDUM

Receipt of the above-mentioned ADDENDUM No. 1, is hereby acknowledged by:

LEE & RO, Inc.

Company Name

This the 24th day of January, 2019

By: M. Steve Ro _____

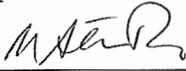
Signature:  Title: Principal-in-Charge

EXHIBIT B

SCHEDULE OF CHARGES



LEE & RO, Inc.

1199 South Fullerton Road, City of Industry, CA 91748

Tel: (626) 912-3391

Fax: (626) 912-2015

www.LEE-RO.com

January 24, 2019

Office of the City Clerk
City Hall
City of Calexico
298 West 2nd Street,
Calexico, CA 92231

Subject: Fee Proposal for Wastewater Treatment Plant Upgrading and Expansion Project

Ladies and Gentlemen:

LEE & RO, Inc. is pleased to submit this fee proposal for engineering services for the Wastewater Treatment Plant Upgrading and Expansion Project. The total not-to-exceed fee proposed is **\$1,992,373**. The total proposed fee is broken down as follows:

Engineering & Design Phase	\$1,483,718
Bidding Phase	\$ 43,166
Construction Support Phase	\$ 465,489
Total	\$1,992,373

The enclosed spreadsheet (**Exhibit 1**) shows the breakdown of our fee. Our current billing rate schedules are enclosed as **Exhibit 2** and **Exhibit 3**.

Thank you for the opportunity to submit this proposal. Please do not hesitate to call if you have any questions or comments.

Sincerely,

LEE & RO, Inc.

M. Steve Ro, PE
Principal in Charge

Encl: Exhibit 1 Fee Proposal, Exhibit 2 Billing Rate Schedule, and Exhibit 3 Other Direct Costs Schedule

BILLING RATE SCHEDULES:

Exhibit 2

LEE & RO, Inc.

FY 2019 Hourly Billing Rate Schedule

(Effective from November 1, 2018 to October 31, 2019)

This Schedule will be subject to change at the beginning of the new fiscal year (November 1st)

PERSONNEL CLASSIFICATION		BILLING RATES (\$/HOUR)
ENGINEERS		
Engineer 8	E8 Managing Engineer	\$240
Engineer 7	E7 Supervising Engineer	\$217
Engineer 6	E6 Principal Engineer	\$196
Engineer 5	E5 Senior Engineer	\$178
Engineer 4	E4 Engineer	\$162
Engineer 3	E3 Associate Engineer	\$145
Engineer 2	E2 Assistant Engineer	\$128
Engineer 1	E1 Junior Engineer	\$112
CAD / DESIGNERS		
Designer 5	T5 Principal Designer	\$162
Designer 4	T4 Senior Designer	\$145
Designer 3	T3 Designer	\$128
Designer 2	T2 Associate Designer	\$112
Designer 1	T1 Assistant Designer	\$96
FIELD PROFESSIONALS		
Field Professional 5	F5 Senior Resident Engineer	\$162
Field Professional 4	F4 Resident Engineer	\$145
Field Professional 3	F3 Senior Inspector	\$128
Field Professional 2	F2 Inspector	\$112
Field Professional 1	F1 Assistant Inspector	\$96
ADMINISTRATIVE		
Administrative 3	A3 Contract Manager	\$145
Administrative 2	A2 Project Assistant	\$112
Administrative 1	A1 Word Processor	\$96



Exhibit 3
LEE & RO, Inc.

FY 2019 Other Direct Cost (ODC) Billing Rate Schedule

(Effective from November 1, 2018 to October 31, 2019)

This schedule will be subject to change at the beginning of the new fiscal year (November 1st)

Automobile Mileage	IRS Published Rate
	\$0.08 / sheet (8.5 x 11 Bond B & W)
	\$0.20 / sheet (8.5 x 11 Bond Color)
In-house Reproduction	\$0.15 / sheet (11 x 17 Bond B & W)
	\$0.50 / sheet (11 x 17 Color)
	\$1.25 / sheet (24 x 36 Bond)
Mylar Original Drawing	\$8.00 / sheet (24 x 36 or 22 x 34)
Computers & Work Stations	No Charge
Subconsultant Mark-up	Subconsultant Invoice Amount Plus 5%, Unless Client Specifies Otherwise
Bulk Reproduction by Outside Printing Firm	Invoice amount plus 10% Handling Charge
Overnight Mailing, Air Fare, Project-Specific Software, Equipment Rental, etc.	At Cost



EXHIBIT C

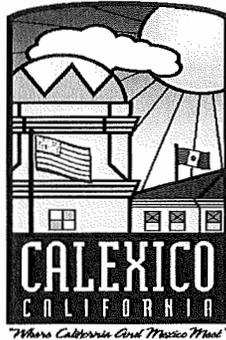
CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

I hereby certify that in the performance of the work for which this Agreement is entered into, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of the State of California.

Executed on this _____ day of _____, 2019, at _____, California.

Consultant

CITY OF CALEXICO



REQUEST FOR PROPOSALS
ENGINEERING SERVICES FOR
WASTEWATER TREATMENT PLANT UPGRADING AND
EXPANSION PROJECT

City of Calexico
Wastewater Treatment Plant

298 W 2nd Street
Calexico CA, 92231
(760) 768-2167

Submit proposals to:

Office of the City Clerk
City Hall
City of Calexico
608 Heber Avenue
Calexico, CA 92231

December 2018

REQUEST FOR PROPOSALS

ENGINEERING SERVICES FOR WASTEWATER TREATMENT PLANT UPGRADING AND EXPANSION PROJECT

December 2018

Proposals will be accepted by the City of Calexico (CITY) for wastewater treatment engineering services. This Request for Proposals (RFP) describes the project scope and required engineering services for the *Wastewater Treatment Plant (WWTP) Upgrading and Expansion Project* (PROJECT).

PROCESSING OF PROPOSALS

A **non-mandatory** preproposal meeting with prospective consultants will be held at 9:00 a.m. on December 18th at the Wastewater Treatment Plant located at: 298 W. 2nd Street (Animal Shelter Drive as shown on Google Maps), Calexico, CA 92231.

Any relevant questions concerning the RFP and the Scope of Work (SOW) shall be directed in writing to:

David Dale, PE, PLS
City Manager
City of Calexico
608 Heber Avenue
Calexico, CA 92231
ddale@calexico.ca.gov

All questions must be written and received prior to **December 27, 2018** at 5:00 p.m. All questions will be answered in writing; no answers will be given to individual proposers. Answers to all questions will be distributed to the consultants as RFP addenda. The CITY will not consider any verbal instructions or information that may be provided to the consultants.

To receive consideration, five (5) bound copies and an electronic copy (USB or CD) of the proposal shall be submitted to:

Office of the City Clerk
City Hall
City of Calexico
608 Heber Avenue
Calexico, CA 92231

no later than **January 10, 2019 at 2:00 p.m.** Prospective Consultants assume the risk of any delay in mailing or delivery of the proposal. Oral, telegraphic, or telephonic proposals or modifications will not be considered. More than one proposal from an individual or firm will not be considered.

PROJECT BACKGROUND

The City of Calexico, California owns and operates a Wastewater Treatment Plant (WWTP) located at 298 West 2nd Street, Calexico, CA 92231. The total permitted WWTP treatment capacity is 4.3 million gallons per day (mgd) and the current average flow is approximately 2.7 mgd. The WWTP generates approximately 290 metric tons of Class B Biosolids per year.

The WWTP consists of two separate treatment trains, (1) Conventional Activated Sludge (Train 1), and (2) Aerated Lagoons (Train 2). Train 1 has a total permitted capacity of 2.5 mgd and Train 2 has a total permitted capacity of 1.8 mgd. Both Trains share a common headworks and the effluent from both Trains undergoes ultra-violet (UV) disinfection before being discharged into the New River. Solids are anaerobically digested and dried in sludge drying beds.

The existing WWTP has been in service for over 50 years. Although the City has partially upgraded certain plant facilities (upgrades to Train 1 were performed in 1974, 1991, and 1995; upgrades to Train 2 were performed in 1994), most of the WWTP components are at the end of their useful service life.

The WWTP is subject to the waste discharge requirements set forth by the California Regional Water Quality Control Board (RWQCB), Colorado River Basin Region (Region 7) Order R7-2014-0004 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA7000009 for discharge of the effluent into the New River. The current NPDES permit (adopted May 8, 2014) is set to expire May 31, 2019 and the City plans to apply for permit renewal.

In 2014, Carollo Engineers performed a WWTP Condition Assessment Study. In 2018, LEE & RO, Inc. prepared a WWTP Master Plan. These reports and the NPDES permit documents are available on the City's website at xxxxxxxx

The WWTP processes are not adequately sized to meet anticipated waste loads. Capacity upgrades are required to meet the projected Year 2038 Average Dry Weather Flow (ADWF) of 5.8 mgd and Peak Wet Weather Flow (PWWF) of 11.6 mgd. In consideration of future potential regulatory requirements, the upgraded WWTP should be capable of producing an effluent with low ammonia concentration (e.g. less than 5 mg/l). The 2018 WWTP Master Plan describes the recommended project in detail.

To replace outdated equipment and facilities, upgrade treatment processes, and increase WWTP capacity, the CITY has selected the single basin activated sludge (e.g. Biolac) for this PROJECT.

The PROJECT Scope will include the following major components:

- New packaged Septage Receiving Station.
- New Influent Pump Station.
- New Influent Metering Structure
- Improvements to Headworks, including New Screens, and Screenings Disposal Systems.

- New Vortex Grit Removal System.
- Three New Biolac Aeration Basins and Appurtenances.
- New Aeration Blowers and Blower Building.
- Two New Secondary Clarifiers.
- New RAS, WAS, and Scum Pump Stations
- Replace Existing Calgon UV System with Trojan UV system.
- New Rotary Drum Sludge Thickener Facility.
- New Electrical Buildings and Electrical Power Distribution Systems
- New PLC/SCADA systems
- New Piping for Conveyance of Wastewater, Mixed Liquor, Secondary Effluent, Sludges, and Utility Water.
- Site Improvements including Paved Roads for Access to Main Process Units.

The City has established a total construction budget of \$27 million.

SCOPE OF WORK (SOW)

The SOW includes five (5) main project tasks: (1) Project Management & Coordination; (2) Quality Assurance / Quality Control (QA/QC); (3) Permitting Assistance; (4) Final Design and Bidding Services, and (5) Construction Support Services.

TASK 1 - PROJECT MANAGEMENT & COORDINATION

The Consultant shall be responsible for project management and coordination of the project deliverables. Task 1 includes the following subtasks:

1A: Work Plan. The Work Plan shall describe the communication, reporting, and project documentation procedures (formats and standards for calculations, monthly status reports, memoranda, equipment data sheets, etc.) The Work Plan shall be submitted to the CITY within two weeks from the date of Notice to Proceed.

1B: Project Management and Coordination. The CITY has limited staff available to administer the Project. The Consultant shall be responsible for scheduling meetings with the CITY and regulatory agencies and preparing agendas and meeting minutes. The Consultant shall submit monthly status reports with invoices summarizing the project status with updated schedule information, work performed during the month, work anticipated for the next month, and outstanding issues to be resolved.

The Consultant shall attend the kick-off and monthly progress meetings for design & deliverable review, operations and maintenance (O&M) and safety review, and regulatory permit coordination. The Consultant must include the following in the estimated level of effort:

- a) Project Kick-Off Meeting at the City Administration Office. Consultant's Principal-in-Charge, Project Manager and Project Engineer shall attend. Assume that the duration of the Kick-Off meeting will be 2 hours excluding travel time.
- b) Six (6) Progress/Project Coordination Meetings at the CITY Administration office. The Consultant's Project Manager, Project Engineer and Key Discipline Lead Engineer(s) should attend the meetings. Assume that the duration of each meeting will be 3 hours excluding travel time.
- c) Four (4) Design Review Meetings at the CITY Administration office. The Consultant's Project Manager, Project Engineer, and Lead Electrical, Structural, and Instrumentation & Controls (I&C) Engineers should attend the meetings. Assume that the duration of each meeting will be 4 hours excluding travel time.
- d) Four (4) Coordination Meetings with Regulatory Agencies. Assume six (6) man-hours/meeting (2 persons 3 hours) for each meeting excluding travel time and the Consultant's Project Manager and a key discipline engineer should attend the meetings.

TASK 2 – PROJECT QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

The Consultant shall administer an effective design QA/QC program, which shall include integrated design reviews, inter-discipline coordination checks, and other document checking and review procedures that the Consultant deems necessary. All deliverables shall include a statement verifying that appropriate in-house QA/QC has been performed. The CITY plans to review general design concepts only. The Consultant shall be solely responsible for the quality of all design documents and other deliverables. The Consultant shall allocate adequate resources to the QA/QC activities.

TASK 3 – PERMITTING ASSISTANCE AND AGENCY COORDINATION

The Consultant shall assist the CITY with processing and obtaining all necessary permits and design document approvals from Imperial County. The Consultant shall assist the CITY with the preparation of California Environmental Protection Act (CEQA) documents. The Consultant shall coordinate the design review with and obtain approvals from RWQCB, Region 7 and the Imperial County Air Pollution Control District permit and any other agencies related to this PROJECT.

TASK 4 - FINAL DESIGN AND BIDDING SERVICES

4A: Final Design. The Final design shall include all necessary design discipline drawings - general, civil/site, demolition, yard piping, architectural, structural, mechanical, electrical, and instrumentation and controls (I&C). Equipment and instrument data sheets shall be prepared for all electrically powered equipment and instruments. The I&C drawings shall contain ISA-format P&IDs and the specifications shall include complete control loop descriptions. All electrical duct banks, conduits and wires shall be properly labeled & identified, and control panels & PLCs adequately detailed. The Consultant shall develop a numbering system for process areas, equipment, and instruments.

DESIGN SUBMITTAL REQUIREMENTS

The Consultant shall prepare plans, specifications, and construction cost estimates. The drawings shall be prepared in AutoCAD and all specifications will be prepared in MS Word format. The City will provide a template for the front-end boilerplate sections; however, the Consultant shall carefully review and finalize them and provide the bid forms.

Consultant shall provide 30%, 60%, 90% and final (100%) design submittals consisting of plans, specifications and probable construction cost estimates. Specification outline (table of contents) may be substituted for the 30% specification submittal. The 30%, 60%, and 90% submittals shall include six (6) sets of half-size drawings, specifications, and probable construction cost estimates. The final (100%) submittal shall include two (2) sets of full-size drawings, three (3) sets of half-size drawings, one (1) set of the original specifications plus three (3) copies, one (1) copy of construction cost estimates, two (2) copies of bound final engineering calculations for all disciplines, and an electronic copy (USB or CD) of the plans and specifications.

GEOTECHNICAL INVESTIGATION REPORT

A geotechnical investigation shall be performed to obtain subsurface soil and groundwater information. Please note that the Treatment Plant is situated in a seismically active area on potentially unsuitable soils. A minimum of five (5) borings to a depth of 75 feet shall be made and appropriate tests shall be performed. The geotechnical report shall recommend the foundation design criteria for all structures and pipelines.

SURVEYING

Topographic surveys shall be performed for the entire plant site and electronic topographic maps shall be prepared with 1-foot contour lines. The survey shall cover the entire plant property including the plant outfall and sludge drying beds.

4B: Bid Support Services. The CITY will distribute the bidding documents to bidders. The Consultant shall provide bid support services as follows:

- a. Conduct a pre-bid conference and job walk. Consultant's Project Manager shall attend the conference and lead the job walk.
- b. Respond to bidders' inquiries relative to design documents. All significant clarifications must be documented in an addendum. Up to three addenda should be included. The CITY will mail addenda to all plan-holders.
- c. Review and tabulate bids received and make award recommendation.
- d. Prepare "Conformed Drawings and Specifications" by incorporating all addenda issued into the original construction documents. Submit an electronic copy (USB or CD) of conformed plans & specifications, three sets of half-size conformed drawings, and two sets of full-size conformed drawings.

TASK 5 - CONSTRUCTION SUPPORT SERVICES

The Consultant shall provide the construction support services. The construction management/resident engineering and inspection services will be provided by the CITY or a firm selected by the CITY under a separate contract. The construction support services include:

- a. Attend the pre-construction conference. The Consultant's Project Manager and Engineer shall attend the conference.
- b. Review and comment on shop drawings and equipment submittals. Assume the total number of submittals is 250. Also, assume that 120 submittals will require second review and 50 submittals will require third review.
- c. Prepare responses to requests for information (RFIs) within the time constraints of the specifications. Assume the total number of RFIs is 200.
- d. Assist the City with preparation of construction change orders. Participate in negotiation meetings with the construction contractor for significant change orders that require preparation of drawings or drawing revisions and cost estimates. Assume the total number of significant change orders is 20.
- e. Attend 16 construction meetings (and make site visits on the same day) by Project Manager, Project Engineer, and/or Lead Design Discipline Engineer(s). Assume each meeting/visit will take 10 man-hours excluding travel time. The Consultants shall submit a report summarizing significant findings, if any, for each site visit.
- f. Review Plant Startup and Commissioning Plan. The Consultant should review and comment on the Contractor's Startup and Commissioning Plan and provide comments for the City.
- g. Prepare record drawings on mylar based upon the marked-up drawings provided by the Contractor and/or CITY's Resident Engineer at the end of construction. The record mylar drawings and USB or CD shall be delivered to the CITY.

PROJECT SCHEDULE

The CITY has established the tentative Project Schedule as shown below. The CITY's review time will be two (2) weeks for each submittal. The Consultants may propose an alternate schedule for the CITY's consideration.

Non-mandatory Preproposal Meeting	December 18, 2018
Questions Due	December 27, 2018
Proposal Due	January 10, 2019
Notice to Proceed Issued	February 4, 2019
Kick-off Meeting	February 18, 2019
30% Design Submittal	June 20, 2019
60% Design Submittal	September 5, 2019
90% Design Submittal	December 13, 2019
100% (Final) Design Submittal	January 9, 2020

1. Award and Contract Information

- A. The City hereby notifies all proposers that it will affirmatively ensure that minority business enterprises will be afforded full opportunity to submit proposals in response to this invitation, and that no proposer shall be discriminated against on the grounds of age, race, color, sex, religion, creed, national origin, marital status, political affiliation, or disability.
- B. The Consultant agrees that should it be awarded a contract, the Consultant shall not discriminate against any person who performs work there under because of age, race, color, sex, religion, creed, national origin, marital status, political affiliation, or disability.
- C. The City reserves the right to reject any or all proposals and to waive any irregularities if deemed in the best interest of the City to do so. The City will select the Consultant whose proposal is determined by the City to be the most responsive and responsible proposal and of the best advantage to the citizens of Calexico. The City shall be the sole judge in making such a determination.
- D. The successful Consultant will be required to enter into and sign a formal agreement with the City, which agreement will be in effect for the duration of the contract period. It is the Consultant's responsibility to review the contract's terms and conditions and to state any exceptions to those conditions in its response to the RFP. If no exceptions are noted, the City will understand that the Consultant agrees to the terms and conditions as stated in the contract.
- E. In a separate sealed envelope, include a copy of your proposed fee schedule. The fee schedule will not be used during the consultant selection but may be used by the City for comparison purposes during negotiations. The cost proposal must include a detailed lump sum for each task that identifies the cost of staff, direct expenses, and total cost for each task. The cost proposal shall include a schedule of billing rates and conditions under which the consultant would submit a claim for extra work not covered in the lump sum. To be considered responsive, cost proposals must include all work described in this RFP and the technical proposal.
- F. Prior to final selection, Consultant may be required to submit any additional information that the City may deem necessary to determine the Consultant qualifications. Should any of the information requested by the City be considered by the Consultant to be confidential, it must be so stated. The City will attempt to treat any information submitted by the Consultant as confidential if requested to do so; however, the City cannot ensure such confidentiality.
- G. Open Procurement
 - 1. The Consultant shall include any latitudes, prohibitions or limitations placed on the purchase of the items presented in the Consultant's proposal. Items and/or services that Consultant intends to be offered on a unit price basis must be so identified.
 - 2. The City reserves the right to negotiate changes to the original proposal(s), including change in system cost and/or unit price.

3. The City reserves the right to accept or reject any or all proposals in whole or in part.
4. The City reserves the right to negotiate a contract with more than one Consultant at the same time.

2. PROPOSAL ORGANIZATION AND CONTENT

The following information shall be included in the Statement of Proposals (RFP):

1. A letter of transmittal indicating the firm's interest in providing the service and any other information that would assist the City in making a selection. Include the name, address, telephone number, and email address of person(s) to be contacted for further information or clarification. This letter must be signed by a person legally authorized to bind the firm to a contract.
2. The proposed project manager must be a licensed professional (architect and/or engineer), and the Consultant(s) firm or team must include a licensed architect, structural engineer, and geotechnical engineer. The firm or team – at the Consultant(s) discretion – also may include, but not limited to, a civil engineer, a mechanical engineer, and/or a landscape architect.
3. Company background information including a description of the firm/individual submitting the RFP.
4. List of similar fire stations completed over the past five (5) years with the contact name, address and telephone number of the owners' representative for each project.
5. Overall approach to addressing the needs of the City, including discussion of staff availability and capacity to respond to City requests for assistance in a timely manner.
6. A proposed project schedule and timeline. Capability to complete the project within the confines of the project schedule.
7. An organization chart and supporting narrative describing the roles and responsibilities of each person proposed to support this project. Include a resume for the critical staff that will be assigned to this project.
8. A concluding statement as to why the respondent is best qualified to meet the needs of the City.
9. Conflict of Interest Statement
The prospective consultant shall disclose any financial, business or other relationship with the City that may have an impact upon the outcome of this contract. The prospective consultant shall also list current clients who may have a financial interest in the outcome of this contract or any City construction project that may follow. The prospective consultant shall disclose any financial interest or relationship with any owner/developer that might have future improvements within the City.

10. Insurance Coverage

The prospective consultant shall provide a summary of the firm's insurance coverage for comprehensive, general liability, professional liability, automotive liability and worker's compensation insurance. Indicate the limits of coverage on each policy. The City requires a minimum of \$1 million of general liability coverage during the contract period (see Attachment A).

Please limit submissions to a maximum of ten (10) single-sided 8½x11 pages, excluding personnel resumes. Additional information may be submitted in the form of attachments.

Proposed Consultant fees shall be submitted in a separate envelope labeled "Proposed Fees".

The selected Consultant shall be required to execute a City Standard Consultant Services contract, a sample of which is shown in Attachment A. Any exceptions taken to the standard contract must be explained and detailed in the RFP submittal.

SECTION V – EVALUATION AND SELECTION

1. EVALUATION CRITERIA

The following factors will be considered by the City when evaluating the RFP:

1. Accuracy, overall quality, thoroughness, and responsiveness to the City's requirements as summarized herein.
2. The proposals and experience of the firm, the designated account representative, and other key personnel and Consultants assigned to the project.
3. Successful performance of similar work on fire station projects.
4. Overall approach to providing the Consultant services requested.
5. Company's plan to meet the City's goals and expectations of the project.
6. Company's experience working on similar projects.

2. SELECTION PROCESS

Selection by the City of Calexico for professional services will be made based on demonstrated competence and on the professional proposals necessary for the satisfactory performance of the services.

The City reserves the right to reopen the qualification process to other interested Consultants if it is determined that the number of respondents to the Request for Proposals is insufficient to support the selection process. If the City elects to reopen the qualification process, Consultants that have already submitted their proposals need not submit a second Statement of Proposals. If the qualification process is reopened, the City will use the same standards and criteria to evaluate the merits of the additional applicants.

The City's Screening Committee will review and score the Statements of Proposals received by the submittal deadline to determine which firm best meets the Selection Criteria and is best qualified to perform the work. Consultants will be ranked in the order of their qualification evaluation scores. Interviews may or may not be conducted at the sole discretion of the City.

Upon selection of a preferred Consultant, the City will request a statement of work and fee proposal, broken down in sufficient detail to allow the City to determine appropriateness. Revisions to the fee proposal may be requested if the City determines it to be in its best interest.

This solicitation does not commit the City to award a contract or to pay any costs incurred in the preparation of an RFP in response to this request. All submittals in response to this RFP shall become the property of the City of Calexico. The City reserves the right to accept or reject any or all RFPs received because of this request, to negotiate with the selected respondents; the right to extend the contract for an additional period; or to cancel in part or in its entirety the request for proposals, if it is in the best interests of the City to do so.

A panel consisting of City staff will evaluate all submittals received for completeness and the respondent's ability to meet all requirements as outlined in this RFP.

Following review and evaluation of submittals, the City reserves the right to request additional information. Based on review and rating of the proposals, a short list of respondents may be developed. Interviews with the short-listed respondents may be conducted.

Upon selection of a preferred consultant, the City will open the sealed proposed fee schedule, the cost proposal must include a detailed lump sum for each task that identifies the cost of staff, direct expenses, and total cost for each task. Revisions to the fee proposal may be requested if the City determines it to be in its best interest.

ATTACHMENT A – Sample of the Standard Professional Services Contract

AGREEMENT FOR PROFESSIONAL SERVICES

This Agreement is made and entered into as of the _____ day of _____, 2019, by and between the City of Calexico ("City") and _____ ("Consultant").

RECITALS

A. Consultant is specially trained, experienced and competent to perform the special services which will be required by this Agreement; and

B. Consultant possesses the skill, experience, ability, background, certification and knowledge to provide the services described in this Agreement on the terms and conditions described herein.

AGREEMENT

1. Scope of Services. The Consultant shall furnish the following services in a professional manner. Consultant shall perform the services described on Exhibit A which is attached hereto and incorporated herein by reference. Consultant shall provide said services at the time, place, and in the manner specified in Exhibit A, subject to the direction of the City through its staff that it may provide from time to time.

2. Time of Performance. The services of Consultant are to commence upon execution of this Agreement and shall continue until all authorized work is approved by the City. All such work shall be completed no later than December 31, 2021. Time is of the essence for every provision of this agreement that states a time for performance and for every deadline imposed by the City.

3. Compensation. Compensation to be paid to Consultant shall be as set forth in Exhibit B, which is attached hereto and incorporated herein by reference. Payment by City under this Agreement shall not be deemed a waiver of defects, even if such defects were known to the City at the time of payment.

4. Method of Payment. Consultant shall submit monthly billings to City describing the work performed during the preceding month. Consultant's bills shall include a brief description of the services performed, the date the services were performed, the number of hours spent and by whom, and a description of any reimbursable expenditures. City shall pay Consultant no later than 30 days after approval of the monthly invoice by City staff.

5. Ownership of Documents. All plans, studies, documents and other writings prepared by and for Consultant, its officers, employees and agents and subcontractors in the course of implementing this Agreement, except working notes and internal documents, shall become the

property of the City upon payment to Consultant for such work, and the City shall have the sole right to use such materials in its discretion without further compensation to Consultant or to any other party. Consultant shall, at Consultant's expense, provide such reports, plans, studies, documents and other writings to City upon written request.

6. Independent Contractor. It is understood that Consultant, in the performance of the work and services agreed to be performed, shall act as and be an independent contractor and shall not act as an agent or employee of the City. Consultant shall obtain no rights to retirement benefits or other benefits which accrue to City's employees, and Consultant hereby expressly waives any claim it may have to any such rights.

7. Interest of Consultant. Consultant (including principals, associates and professional employees) covenants and represents that it does not now have any investment or interest in real property and shall not acquire any interest, direct or indirect, in the area covered by and during this Agreement or any other source of income, interest in real property or investment which would be affected in any manner or degree by the performance of Consultant's services hereunder. Consultant further covenants and represents that in the performance of its duties hereunder no person having any such interest shall perform any services under this Agreement.

Consultant is not a designated employee within the meaning of the Political Reform Act because Consultant:

- a. will conduct research and arrive at conclusions with respect to his/her rendition of information, advice, recommendation or counsel independent of the control and direction of the City or of any City official, other than normal agreement monitoring; and
- b. possesses no authority with respect to any City decision beyond rendition of information, advice, recommendation or counsel. (FPPC Reg. 18700(a)(2).)

8. Professional Ability of Consultant. City has relied upon the professional training and ability of Consultant to perform the services hereunder as a material inducement to enter into this Agreement. Consultant shall therefore provide properly skilled professional and technical personnel to perform all services under this Agreement. All work performed by Consultant under this Agreement shall be in accordance with applicable legal requirements and shall meet the standard of quality ordinarily to be expected of competent professionals in Consultant's field of expertise.

9. Indemnity. Consultant agrees to indemnify, including the cost to defend, the City, and its officers, agents and employees from any and all claims, demands, costs or liability that arise out of, or pertain to, or relate to the negligence, recklessness, or willful misconduct of Consultant and its agents in the performance of services under this contract. This indemnity does not apply to liability for damages for death or bodily injury to persons, injury to property, or other loss, damage or expense arising from the sole negligence, willful misconduct or defects in design by the City or its agents, servants, or independent contractors who are directly responsible to the City, or the active negligence of the City.

To the fullest extent permitted by law, the Consultant shall (1) immediately defend and (2) indemnify the City, and its councilmembers, officers, agents, and employees from and against all liabilities regardless of nature or type that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, or its employees, agents, or subcontractors. Liabilities subject to the duties to defend and indemnify include, without limitation, all claims, losses, damages, penalties, fines, and judgments; associated investigation and administrative expenses; defense costs, including but not limited to reasonable attorneys' fees; court costs; and costs of alternative dispute resolution. The Consultant's obligation to indemnify applies unless it is finally adjudicated that the liability was caused by the sole active negligence or sole willful misconduct of an indemnified party. If it is finally adjudicated that liability is caused by the comparative active negligence or willful misconduct of an indemnified party, then Consultant's indemnification obligation shall be reduced in proportion to the established comparative liability.

(b) The duty to defend is a separate and distinct obligation from Consultant's duty to indemnify. Consultant shall be obligated to defend, in all legal, equitable, administrative, or special proceedings, with counsel approved by the City, the City and its councilmembers, officers, agents, and employees, immediately upon tender to Consultant of the claim in any form or at any stage of an action or proceeding, whether or not liability is established. An allegation or determination that persons other than Consultant are responsible for the claim does not relieve Consultant from its separate and distinct obligation to defend under this section. The obligation to defend extends through final judgment, including exhaustion of any appeals. The defense obligation includes an obligation to provide independent defense counsel if Consultant asserts that liability is caused in whole or in part by the negligence or willful misconduct of the indemnified party. If it is finally adjudicated that liability was caused by the comparative active negligence or willful misconduct of an indemnified party, Consultant may submit a claim to the City for reimbursement of reasonable attorneys' fees and defense costs in proportion to the established comparative liability of the indemnified party.

(c) The review, acceptance or approval of the City's work or work product by any indemnified party shall not affect, relieve or reduce the City's indemnification or defense obligations. This Section survives completion of the services or the termination of this contract. The provisions of this Section are not limited by and do not affect the provisions of this contract relating to insurance.

10. Insurance Requirements.

a. Consultant, at Consultant's own cost and expense, shall procure and maintain, for the duration of the contract, the following insurance policies.

i. Workers' Compensation Coverage. Consultant shall maintain Workers' Compensation Insurance and Employer's Liability Insurance for his/her employees in accordance with the laws of the State of California. In addition, Consultant shall require each subcontractor to similarly maintain Workers' Compensation Insurance and Employer's Liability Insurance in accordance with the laws of the State of California for all of the subcontractor's employees. Any notice of cancellation or non-renewal of all Workers' Compensation policies must

be received by the City at least thirty (30) days prior to such change. The insurer shall agree to waive all rights of subrogation against City, its officers, agents, employees and volunteers for losses arising from work performed by Consultant for City. This provision shall not apply if Consultant has no employees performing work under this Agreement. If the Consultant has no employees for the purposes of this Agreement, Consultant shall sign the "Certificate of Exemption from Workers' Compensation Insurance" which is attached hereto as Exhibit C.

ii. General Liability Coverage. Consultant shall maintain commercial general liability insurance in an amount not less than one million dollars (\$1,000,000) per occurrence for bodily injury, personal injury and property damage. If a commercial general liability insurance form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Agreement or the general aggregate limit shall be at least twice the required occurrence limit.

iii. Automobile Liability Coverage. Consultant shall maintain automobile liability insurance covering bodily injury and property damage for all activities of the Consultant arising out of or in connection with the work to be performed under this Agreement, including coverage for owned, hired and non-owned vehicles, in an amount of not less than one million dollars (\$1,000,000) combined single limit for each occurrence.

iv. Errors and Omissions Liability. Consultant shall maintain errors and omissions liability insurance for all work performed under this Agreement in an amount of not less than one million dollars (\$1,000,000).

b. Policy Endorsements. Each general liability and automobile liability insurance policy shall be with insurers possessing a Best's rating of no less than A:VII and shall be endorsed with the following specific language:

i. The City of Calexico, its elected or appointed officers, officials, employees, agents and volunteers are to be covered as additional insureds with respect to liability arising out of work performed by or on behalf of the Consultant, including materials, parts or equipment furnished in connection with such work or operations.

ii. This policy shall be considered primary insurance as respects the City, its elected or appointed officers, officials, employees, agents and volunteers. Any insurance maintained by the City, including any self-insured retention the City may have, shall be considered excess insurance only and shall not contribute with it.

iii. This insurance shall act for each insured and additional insured as though a separate policy had been written for each, except with respect to the limits of liability of the insuring company.

iv. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its elected or appointed officers, officials, employees, agents or volunteers.

v. The insurance provided by this policy shall not be suspended, voided, canceled, or reduced in coverage or in limits except after thirty (30) days written notice has been received by the City.

c. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the City's option, Consultant shall demonstrate financial capability for payment of such deductibles or self-insured retentions.

d. Certificates of Insurance and Endorsements. Consultant shall provide certificates of insurance with original endorsements to City as evidence of the insurance coverage required herein. Certificates of such insurance shall be filed with the City on or before commencement of performance of this Agreement. Current certification of insurance shall be kept on file with the City at all times during the term of this Agreement.

11. Compliance with Laws. Consultant shall use the standard of care in its profession to comply with all applicable federal, state and local laws, codes, ordinances and regulations.

12. Licenses. Consultant represents and warrants to City that it has all licenses, permits, qualifications, insurance and approvals of whatsoever nature which are legally required of Consultant to practice its profession. Consultant represents and warrants to City that Consultant shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement, any licenses, permits, insurance and approvals which are legally required of Consultant to practice its profession. Consultant shall obtain a City of Calexico Business License.

13. Controlling Law Venue. This Agreement and all matters relating to it shall be governed by the laws of the State of California and any action brought relating to this Agreement shall be held exclusively in a state court in the County of Imperial, California.

14. Written Notification. Any notice, demand, request, consent, approval or communication that either party desires or is required to give to the other party shall be in writing and either served personally or sent prepaid, first class mail. Any such notice, demand, etc. shall be addressed to the other party at the address set forth herein below. Either party may change its address by notifying the other party of the change of address. Notice shall be deemed communicated within 48 hours from the time of mailing if mailed as provided in this section.

If to City: City of Calexico, City Manager
608 Heber Ave.
Calexico, CA 92231

If to Consultant:

15. Consultant's Books and Records.

a. Consultant shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements charged to City for a minimum period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant to this Agreement.

b. Consultant shall maintain all documents and records which demonstrate performance under this Agreement for a minimum period of three (3) years, or for any longer period required by law, from the date of termination or completion of this Agreement.

c. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit, at any time during regular business hours, upon written request by the City Manager, City Attorney, City Auditor or a designated representative of these officers. Copies of such documents shall be provided to the City for inspection at City Hall when it is practical to do so. Otherwise, unless an alternative is mutually agreed upon, the records shall be available at Consultant's address indicated for receipt of notices in this Agreement.

d. Where City has reason to believe that such records or documents may be lost or discarded due to dissolution, disbandment or termination of Consultant's business, City may, by written request by any of the above named officers, require that custody of the records be given to the City and that the records and documents be maintained in City Hall. Access to such records and documents shall be granted to any party authorized by Consultant, Consultant's representatives, or Consultant's successor-in-interest.

16. Entire Agreement. This Agreement constitutes the complete and exclusive statement of Agreement between the City and Consultant. All prior written and oral communications, including correspondence, drafts, memoranda, and representations, are superseded in total by this Agreement.

17. Amendments. This Agreement may be modified or amended only by a written document executed by both Consultant and City and approved as to form by the City Attorney.

18. Waiver. No failure on the part of either party to exercise any right or remedy hereunder shall operate as a waiver of any other right or remedy that party may have hereunder.

19. Execution. This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by both parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

20. Assignment and Subcontracting. The parties recognize that a substantial inducement to City for entering into this Agreement is the professional reputation, experience and competence of Consultant. Assignments of any or all rights, duties or obligations of the Consultant under this Agreement will be permitted only with the express consent of the City. Consultant shall not subcontract any portion of the work to be performed under this Agreement without the written authorization of the City. If City consents to such subcontract, Consultant shall be fully responsible to City for all acts or omissions of the subcontractor. Nothing in this Agreement shall create any contractual relationship between City and subcontractor nor shall it create any obligation on the part of the City to pay or to see to the payment of any monies due to any such subcontractor other than as otherwise is required by law.

21. Termination. This Agreement may be terminated by the City immediately for cause or by either party without cause upon fifteen days' written notice of termination. Upon termination, Consultant shall be entitled to compensation for services performed up to the effective date of termination.

*****SIGNATURES ON FOLLOWING PAGE*****

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the date first written above.

CITY OF CALEXICO:

CONSULTANT:

David Dale
City Manager

APPROVED AS TO FORM:

ATTEST:

Carlos Campos
City Attorney

Gabriela Garcia
Deputy City Clerk

EXHIBIT A

SCOPE OF SERVICES

(proposal dated _____)

EXHIBIT B
SCHEDULE OF CHARGES

EXHIBIT C

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

I hereby certify that in the performance of the work for which this Agreement is entered into, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of the State of California.

Executed on this _____ day of _____, 2018, at _____,
California.

Consultant