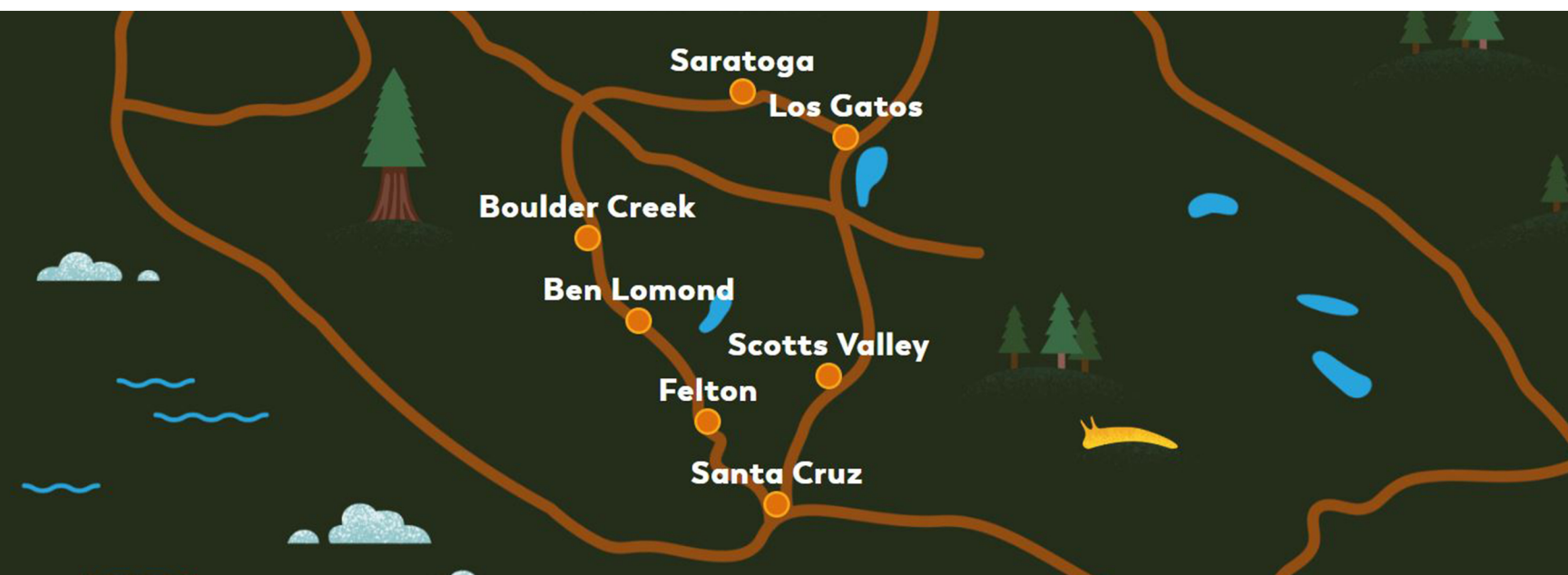




PROPOSAL FOR  
**BEAR CREEK ESTATES  
WASTEWATER  
TREATMENT FACILITY  
ALTERNATIVES  
ANALYSIS**



August 29, 2019

Mr. Darren Langfield  
Engineering Manager  
San Lorenzo Valley Water District  
13060 Highway 9  
Boulder Creek, CA 95006

**RE: Proposal for Professional Design Services for the Bear Creek Estate Wastewater Treatment Facility Alternatives Analysis**

Dear Mr. Langfield:

Infrastructure Engineering Corporation (IEC) is pleased to provide the San Lorenzo Valley Water District (District) with this proposal for Engineering and Professional Engineering Services for the Bear Creek Estate Wastewater Treatment Facility Alternatives Analysis. This proposal is in response to the District's recent Request for Proposal.

The wastewater system for Bear Creek Estates Subdivisions 3, 4 and 5 is operated by the San Lorenzo Valley Water District. The system treats domestic wastewater flow from 56 residential units. The treatment plant was initially constructed in 1985 as a septic tank treatment system. The wastewater system is regulated by the California Central Coast Regional Water Quality Board (Regional Board) under Waste Discharge Order No. 00-43 (WDR).

Modifications to the treatment plant were made during the years 2009 through 2013 after the Regional Board amended the District's WDR to include reduction of nitrogen in the plant effluent by 50%, however, the plant does not currently reduce nitrogen by 50% despite the additional of a third stage trickling filter.

IEC has an excellent understanding of the issues of this project, having prepared previous studies for District. We have been involved in process modifications to assist District staff in meeting the nitrogen reduction requirement of their permit. We are prepared to continue troubleshooting plant operations with staff, if we are selected for this work. We have also contacted several package treatment plant manufacturer's using design data, which we developed, for cost and footprint information. We are ready to analyze whether a new treatment plant is the solution to the nitrogen reduction problem. We have also reviewed the Santa Cruz County regulations on permit requirements for private septic systems and are prepared to interact with stakeholders on this option for compliance with the permit.

The IEC team brings added value to the District through our prior experience with the sewer collection system where we performed a flow monitoring study and identified infiltration and inflow to the system. The District may want to consider future smoke testing as part of this or another project.

We are confident that IEC, along with District staff, will select a preferred alternative that will have considered permit compliance, cost, impact on operations and maintenance, environmental issues and potential funding sources.

Mr. Darren Langfield  
San Lorenzo Water District  
August 29, 2019  
Page 2 of 2

We will be ready on Day 1 for a kick-off meeting and workshop, with our ideas ready to go. We will work collaboratively with the District to make sure the best alternative is selected to meet the District's permit. IEC brings the experience and capability to do the work. We sincerely appreciate the opportunity to provide this proposal and assist the District with this project. Please contact me at (858) 842-6978 should you have any questions or need further information.

Sincerely,



Robert S. Weber, PE  
Principal  
14271 Danielson Street  
Poway, CA 92064  
858-583-6193  
rweber@iecorporation.com



# PROJECT DESCRIPTION AND APPROACH

## PROJECT UNDERSTANDING

The San Lorenzo Valley Water District (District) in Boulder Creek, California was established in 1941 to supply water to the communities of Boulder Creek, Brookdale, Ben Lomond, Lompico, Scotts Valley and Felton. The city of Boulder Creek is located in the Santa Cruz Mountains Region just below the peak of the Santa Cruz Mountains and is the gateway to Big Basin Redwoods State Park, California's oldest state park. The residents served by the San Lorenzo Valley Water District treasure the area for its redwood forests and turn-of-the century mountain town culture. Water supply, water quality as well as rehabilitation of aging infrastructure are key goals of the San Lorenzo Valley Water District to keep this unique area sustainable for the future.

Bear Creek Estates Subdivisions 3, 4 and 5 were developed in 1984. Some residences in the area date back to 1962. The wastewater system for Bear Creek Estates Subdivisions 3, 4 and 5 is operated by the San Lorenzo Valley Water District. The system treats domestic wastewater flow from 56 residential units. The wastewater system includes a collection system, which consists of 19 manholes, approximately 3,600 linear feet of 6-inch ACP and PVC gravity sewer, 2,600 linear feet of force mains, 2 sewer pump stations and 56 laterals. The wastewater treatment plant is a septic tank-trickling filter treatment system discharging treated effluent to subsurface leach fields. The wastewater system is regulated by the California Central Coast Regional Water Quality Board (Regional Board) under Waste Discharge Order No. 00-43 (WDR).

The Bear Creek Wastewater Treatment plant is located at 15900 Bear Creek Road, Boulder Creek, California. It was initially constructed in 1985 as a septic tank treatment system. It was designed to treat a design daily average flow of 12,000 gallons per day (gpd) and a peak wet weather flow of 32,500 gallons per day (gpd). In its original form, it consisted of two (2) cast-in-place, underground concrete tanks, an influent pump station, an effluent pump station, and a 2.3-acre leach field. Modification to the treatment plant were made during the years 2009 through 2013 after the Regional Board amended the District's WDR to include reduction of nitrogen in the plant effluent by 50%. A third stage trickling filter was added, piping modifications were made, and blowers added to Clarifier #1.

On April 1, 2016, the Regional Board issued a Notice of Violation (NOV) of Wastewater Discharge Permit to the District citing ongoing violations with insufficient total nitrogen reduction since 2007 as well as excess flow from inflow and infiltration (I & I) related violations. The District retained IEC in 2015 to develop recommendations to address the violations. IEC prepared three technical memoranda:

- Memorandum No. 1 – Engineering Controls to Reduce I & I during rain events
- Memorandum No. 2 – Wastewater Treatment Plant Modification to reduce total nitrogen by 50%
- Memorandum No. 3 – Emergency Spill Response Plan

## PROJECT APPROACH

### SUMMARY OF PAST WORK

An analysis of treatment plant effluent permit data demonstrates that the Bear Creek treatment plant removes 80% of both Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS). The District's WDR does not state an effluent limit or % removal requirement for these constituents, only that the wastewater system discharge shall not exceed Maximum Contaminant Level for chemical constituents in the Title 22. BOD and TSS are not listed as contaminants in this regulation. Removal of BOD and TSS in the 80% range is typical for activated sludge plants and suggests that the plant is treating the incoming wastewater effectively.

While it appears that the first stage of the trickling filter is removing BOD and TSS to less than 45 mg/L each, the first stage trickling filter does not appear to reduce total nitrogen. The wastewater treatment plant is not achieving the 50% reduction in total nitrogen in the influent, a limit required by the District's WDR. Current incoming average concentration of total nitrogen are 55 mg/L and outgoing effluent are 49 mg/L for an average removal of 20% over the years 2016-2018.

The removal of nitrogen requires a healthy population of nitrifying microorganisms. These aerobes require a longer time to grow (than carbonaceous "bugs") and require more oxygen. In 2017 the District installed blowers in Tank #3 (Clarifier #1) to increase the dissolved oxygen in the activated sludge leaving the first stage trickling filter (Trickling Filter #1). The addition of dissolved oxygen did not improve the reduction of Total Nitrogen by the wastewater system.



IEC will develop three alternatives to achieve compliance with the District's WDR requirement for nitrogen reduction. We will describe each alternative, develop costs and address associated regulatory issues, operations and maintenance needs and associated environmental permit requirements. An alternatives analysis will be performed and sent to the District for review. After District review, one alternative will be recommended. Implementation steps and a schedule will be included in the technical memorandum documenting the alternatives analysis.

## Alternative 1: Rehabilitate the Existing Treatment Plant

IEC will define what measures need to be undertaken to rehabilitate the existing treatment plant to meet the nitrogen removal permit requirements. Some of these measures were discussed in Technical Memorandum No. 2 – Wastewater Treatment Plant Process Assessment dated July 29, 2017. The status and feasibility of implementing these measures will be further described in this alternative. The status and feasibility of the process modification recommended in the Engineering Update Report dated October 2018 will also be evaluated. These process modification recommendations are summarized in Table 1. A plant modification project to implement these process modifications will be identified, a layout prepared and a planning level cost opinion ( $\pm 30\%$ ) prepared.

**Table 1 – Process Modification Steps**

<b>Step 1</b>	Obtain baseline influent wastewater characteristics at key locations
<b>Step 2</b>	Isolate and test performance of each trickling filter stage
<b>Step 3</b>	Improve process control, maintain DO level with new blowers
<b>Step 4</b>	Improve the microbiological population in the second stage trickling filter (Trickling Filter #3). Improve the mass of "food" or BOD in the second stage trickling filter (Trickling Filter #3). The District could bypass one of the first stage trickling filter tanks, which would allow a higher strength BOD wastewater stream to pass through the second stage trickling filter.

## Alternative 2: Decentralized Treatment

The decentralization of treatment would entail the construction of a private septic tank system at each residence in the Bear Creek Estates Subdivision 3, 4 and 5. New private septic tank systems are required to be permitted by Santa Cruz County. The county code Section 7.38 Sewage Disposal outlines the requirements for private sewage systems. According to the code, because Bear Creek Estates is located in the San Lorenzo Water Supply Watershed, septic systems are only allowed on parcels of one (1) acre or more. IEC performed a cursory review of the 56 residential parcels in the Bear Creek Estates Subdivisions 3, 4 and 5. The bulk of the residential parcels are  $\frac{1}{2}$  acre or less. Another prohibition in the county code is the requirement that septic tanks systems are not allowed if there is an existing sewer within 200 feet for connection. While we find it unlikely that the District could return to individual septic systems, we will consider it as an alternative and speak to various agencies to determine ground truth on the issue.

## Alternative 3: Replace Existing Treatment Plant with New Package Treatment System

IEC proposed a third alternative – replacement of the existing treatment plant with a new package treatment system. A conventional activated sludge system will readily remove BOD, TSS and reduce nitrogen to meet the District's permit. Such a system would need to be designed according to the design parameters in Table 2.

**Table 2 – Treatment Plant Basis of Design**

Parameters	Flow Rate (gpd)	Influent Concentration (mg/L)	Projected Effluent Concentration (mg/L)	% Removal
Average Daily Flow Rate	12,500			
Peak Daily Flow Rate	31,250			
BOD (mg/L)		250	$\leq 5$	98

Parameters	Flow Rate (gpd)	Influent Concentration (mg/L)	Projected Effluent Concentration (mg/L)	% Removal
TSS (mg/L)		250	≤ 5	98
Total Kjeldahl Nitrogen (TKN) (mg/L)		55	25	55
Ammonia (mg/L)		30	≤ 5	83
Phosphorus (mg/L)		8	NA	NA
pH		6.5 to 8.5		

The District would be best served by a modular conventional activated sludge plant with nitrogen removal capabilities. The plant would include flow equalization, aeration tank with air diffusers, digester tank with air diffusers, clarifier, blowers and required electrical and controls equipment. The footprint for such a plant is 15 feet by 35 feet and would fit on the existing plant site. The existing final effluent pumps would be replaced in kind or the existing pumps reused to pump the effluent from the package plant to the existing leach field. IEC would likely recommend that no modifications be made to the existing leach field. We would, however, recommend telemetry so the plant could be monitored by operators at a central location. Fiberglass enclosures may be needed to house blower to alleviate noise issues and odor control may also need to be added due to the proximity to residential neighbors. The manufacturer's estimated cost for the package plant itself, not including a concrete slab, installation – both mechanical and electrical, not including the final effluent pump station or telemetry is approximately \$300,000. IEC will contact these manufacturer's after Alternative 3 is fully developed for budgetary quotes. We will also develop a full Engineer's Opinion of Probable Cost for this alternative, which is likely to be in the range of \$750,000 to \$900,000.

When the alternative has been selected, steps for implementing the project will be established. One of those steps would be the procurement of grant funding through state or federal sources such as the USDA or Bureau of Reclamation. Grant programs require a specific engineering report and grant application, costs for which, will be developed. Whichever alternative is recommended it will meet the goal of permit compliance in keeping with the District's goal of protection of water quality in the San Lorenzo area.

As part of the alternatives analysis, the District has requested that costs for associated environmental issues be included in the overall project cost for each alternative. The environmental issues for the new plant alternative, for example, will not be do to an increase in plant capacity, but rather because the plant is located in the Timber Production Zone of Santa Cruz County. The County may require a public hearing for zoning approval of utilities. If so, the project will require a discretionary permit from the County Planning Department and is considered a Project under CEQA Statutes and Guidelines. Since the proposed plant is a small expansion of an existing treatment plant, the Project could qualify from one of the following CEQA Categorical Exemptions.

Class 1 Existing Facilities: consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination, or

Class 3 New Facilities or Conversion of Existing Facilities: consists of construction of small structures. (Guidelines §15303) (d) Water main, sewage, electrical, gas, and other utility extensions, including street improvements, of reasonable length to serve such construction. The applicability of a Class 3 Exemption is dependent on the location of the project in relation to sensitive resources.

In addition, the Project must comply with the Migratory Bird Treaty Act and Endangered Species Act based on potential to create elevated noise within proximity to migratory bird or endangered species which have been seen in the surrounding forest area. Likewise, the project will involve ground disturbance and must comply with the National Historic Preservation Act. The project is not located on federal land; however, if the project is funded by federal agency grant money, NEPA clearance will be required. Since the project involves a minor expansion of an existing utility, it is expected to qualify for a Categorical Exclusion under NEPA.

# IDENTIFICATION OF PRIME CONSULTANT/SUBCONSULTANTS

## PRIME CONSULTANT

### INFRASTRUCTURE ENGINEERING CORPORATION

**LEGAL NAME & ADDRESS OF THE COMPANY:** Infrastructure Engineering Corporation  
14271 Danielson Street, Poway, CA 92064

**LEGAL FORM OF COMPANY:** State of California – Subchapter C Corporation

**PARENT COMPANY:** N/A

**CONTACT:** Jane Costello, PE – *Project Manager*  
14271 Danielson Street, Poway, CA 92064  
858.842.4425 | jcostello@iecorporation.com

**SIZE OF FIRM:** 56

**LOCATION OF OFFICES:**

*SAN FRANCISCO BAY AREA:* 1735 North First Street, Suite 304, San Jose, CA 95110

*RIVERSIDE COUNTY:* 41593 Winchester Road, Suite 110, Temecula, CA 92590

*SAN DIEGO:* 14271 Danielson Street, Poway, CA 92064

*OCEANSIDE:* 301 Mission Avenue, Suite 202, Oceanside, CA 92054

*ORANGE COUNTY:* 300 Spectrum Center Drive, Suite 400, Irvine, CA 92618

*CENTRAL VALLEY:* 1401 Commercial Way, Suite 100, Bakersfield, CA 93309

**YEARS IN BUSINESS:** 17 years

**BANKRUPTCY FILING, TERMINATED CONTRACTS** None

**DISCIPLINE/JOB TITLE** See table below

**SUBCONSULTANT INFORMATION** IEC will self perform required work. No subconsultants will be utilized.

DISCIPLINE/JOB TITLE	NUMBER OF STAFF	DISCIPLINE/JOB TITLE	NUMBER OF STAFF
Principal	4	CADD Manager	1
Senior Project Manager	4	CADD Designer	2
Project Manager	7	Construction Manager	2
Senior Project Engineer	1	Assistant Construction Manager	1
Project Engineer	2	Senior Construction Inspector	9
Senior Designer	1	Environmental Specialist I	1
Engineer I	2	Environmental Sr. Technical Staff	1
Engineer II	3	Flow Monitoring Manager	1
Engineer III	1	Flow Monitoring Technician	1
Program Manager	1	Intern	1
Assistant Program Manager	1	Administrative	8
Project Surveyor	1		



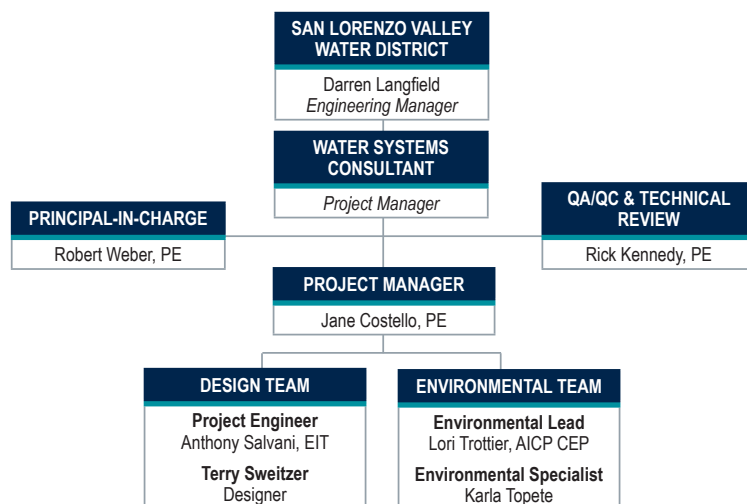
# PROJECT ORGANIZATION & EXPERIENCE

## PROJECT ORGANIZATION & EXPERIENCE

### TEAM ORGANIZATION

IEC's proposed team for San Lorenzo Valley Water District's (District) contract has the resources, capabilities, and commitment to deliver a successful project. The team, under the leadership of **Jane Costello, PE** as Project Manager is well prepared to deliver a project on-time and within budget. Supporting Costello are **Rob Weber, PE** and **Rick Kennedy, PE** as Principal-in-Charge and QA/QC & Technical Review, respectively. Mr. Weber and Mr. Kennedy will provide guidance, resources, and technical oversight to the team, and will ensure the District is delivered a successful project. The organization chart, to the right, depicts the roles and reporting structure for key staff available for the project.

Resumes have been provided in an Appendix.



### KEY PERSONNEL

#### PROJECT MANGER – JANE COSTELLO, PE

Ms. Costello has over 28 years of experience in the water and wastewater field. Her experience includes project management and design of water and wastewater treatment plant improvements, office engineering services during construction and resident engineering. She frequently leads multi-disciplinary teams on her projects. Recent projects include: 1) Leucadia Wastewater District's Gafner Advanced Water Treatment Plant Improvements, 2) City of Oceanside San Luis Rey Wastewater Reclamation Plant Aeration Tank Improvements, 3) Clarifier and RAS/Scum Pumping Station, Ramona Municipal Water District. The projects include upgrades to treatment plant pumping, chemical mixing, aeration tank gate replacement including aeration tank partial bypass pumping while maintaining treatment requirements, and clarifier design, return activated sludge pump station retrofit and hydraulic improvements, respectively.

Ms. Costello served as resident engineer for two large water utility projects. The first project was at the St. Paul, MN McCarron's 35 MGD surface water treatment plant, which included building additions, mechanical piping, equipment installation and start-up for nine water treatment chemicals: chlorine gas, aqueous ammonia, Powder Activated Carbon (PAC), ferric chloride, alum, sodium hydroxide, fluoride, potassium permanganate and slaked lime. The second project included engineering services during construction for the ground-up construction of a 50 mgd water booster station including pump factory witness testing of one 20 mgd and one 30 mgd split case centrifugal pump for Water Booster Pump Station No. 9 for Minneapolis Water Works, MN. All systems in both projects have been operational for the past ten years.

#### PRINCIPAL-IN-CHARGE – ROBERT S. WEBER, PE

Mr. Weber, PE has over 28 years of civil engineering and project management experience and has worked in the wastewater/water/recycled water field for his entire career. Mr. Weber is a Principal and owner of IEC. He leads IEC's wastewater/water design practice and regularly serves as project manager and principal-in-charge on a variety of water infrastructure design projects. Mr. Weber brings to the team technical oversight and project management advice. He also brings to the District the firm's commitment of our staff and resources. Mr. Weber is known for his sincere commitment to provide responsive service, quality work products, and high client satisfaction.

#### QA/QC & TECHNICAL REVIEW – RICK KENNEDY, PE

In his 42 years of experience, Mr. Kennedy has managed the design of more than 12 new and retrofit pump station projects ranging in size from 400 gpm to over 400 mgd, with a variety of types of pumps and drive configurations. He has managed the design of new and retrofit treatment plant projects. He is a specialist in mechanical process equipment of all types, piping, and valves. He prides himself in

working closely with his clients, and ensuring the design team understands the critical issues of the project. He is dedicated to delivering detailed and quality bid packages. He effectively manages project budgets, schedules and risks and continually finds ways to minimizing construction and operational costs.

### PROJECT MANAGEMENT

A successful project must solve several technical challenges while meeting the District's goals. IEC's project management approach provides the well-structured procedures to plan, track, and execute the work while communicating effectively within the team, with the District and with the project stakeholders. The specific management steps our team leaders will take are described below.

IEC'S MANAGEMENT APPROACH MAKES IT EASY FOR THE DISTRICT TO MANAGE IEC	
PLAN	<ul style="list-style-type: none"> <li>✓ Develop detailed scope of services, fee and schedule that meets District expectations.</li> <li>✓ Develop detailed schedule, and identify milestones, critical path tasks, and data collection tasks.</li> <li>✓ Identify lines of communication and points of contact, and provide contact list to the team members and District.</li> <li>✓ Establish clear assignments for each team member with appropriate schedule and level of effort.</li> </ul>
EXECUTE	<ul style="list-style-type: none"> <li>✓ Start the project quickly with a well-organized kick-off meeting that outlines the project goals, clarifies any initial ambiguities, and assigns immediate responsibilities for IEC and the District.</li> <li>✓ Identify and address project issues that are critical to schedule milestones and/or key design decisions.</li> <li>✓ Establish and implement information management procedures - set up and maintain a ShareFile site for documents.</li> <li>✓ Coordinate with IEC staff to provide a unified approach to the project.</li> <li>✓ Define QA/QC roles for key staff and confirm requirements with team members.</li> </ul>
TRACK	<ul style="list-style-type: none"> <li>✓ Check progress in terms of meeting project requirements and goals in accordance with scope of services and schedule, and adjust efforts to accommodate unforeseen changes that arise.</li> <li>✓ Monitor project documentation and meeting minutes to confirm follow-through on action items and District comments.</li> <li>✓ Regularly evaluate project progress in terms of production versus expenditures. Identify issues and adjust staff levels and activities accordingly.</li> </ul>
COMMUNICATE	<ul style="list-style-type: none"> <li>✓ Implement routine communication to keep District Project Manager informed of project progress/status – weekly e-mail/verbal contacts, bi-weekly progress updates, and monthly progress reports by IEC Project Manager.</li> <li>✓ Hold conference call or face-to-face meetings with selected District staff when needed for discussion of technical issues and information exchange.</li> <li>✓ Hold workshop presentations with District-wide stakeholders for comprehensive project review, interdepartmental coordination, and information exchange.</li> <li>✓ Hold regularly scheduled meetings internally with team to review project progress, schedule, and outstanding issues.</li> <li>✓ Coordinate closely with District to achieve coherent project approach.</li> </ul>

### CAPACITY TO PERFORM THE WORK

IEC has the staff and resources immediately available to perform the work as described.

## EXPERIENCE AND PAST PERFORMANCE

### BEAR CREEK WASTEWATER TREATMENT PLANT

**CLIENT/LOCATION:** San Lorenzo Valley Water District  
13060 Highway 9  
Boulder Creek, CA 95006

**CLIENT CONTACT:** Rick Rogers  
**PHONE:** 831.430.4625  
**E-MAIL:** rrogers@slvwd.com

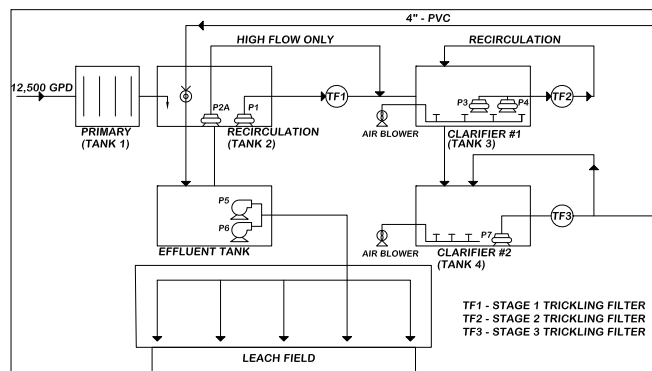
**DATES OF ENGAGEMENT:** May 2016 – Present

**TOTAL PROJECT VALUE:** \$40,000

IEC is providing process evaluation for a septic tank/biotrickling filter wastewater system for the San Lorenzo Valley Water District (District) intended to bring the District in compliance with the Central Coast Regional Water Resources Control Board's regulations for total nitrogen reduction and identify solutions to minimize inflow and infiltration during rainfall event. Through an exhaustive study involving sampling and testing, IEC recommended and implemented process and collection system improvements to bring the District in compliance with regulation.

#### Key Project Components & Issues

- Ongoing Violations with insufficient Total Nitrogen (TN) percent reduction
- Excess flow violations from inflow and infiltration (I&I)
- Operator emergency response training for sewer/WWTP spills



**IEC provided mechanical/process consultation to the District regarding process optimization at the plant**

### SANTA MARGARITA CONJUNCTIVE USE PROJECT

**CLIENT/LOCATION:** Fallbrook Public Utility District  
990 E Mission Road  
PO Box 2290  
Fallbrook, CA 92028

**CLIENT CONTACT:** Jack Bebee, PE  
**PHONE:** 760.728.1125 x1105  
**E-MAIL:** jackb@fpud.com

**DATES OF ENGAGEMENT:** November 2014 – December 2015

**TOTAL PROJECT VALUE:** \$43,000,000

The Santa Margarita Conjunctive Use Project (SMCUP) consists of the design of treatment facilities associated with an agreement between FPUD and the federal government that settled a century long dispute over water rights of the Santa Margarita River. The agreement included Camp Pendleton providing approximately 8 mgd of ground water to FPUD, actual flowrates being dependent on the month of the year and rainfall of the previous year, that was high in iron, manganese, and TDS. The treatment train included 8 mgd of iron and manganese removal utilizing greensand media within five 12' diameter and 30' long pressure vessels. A side stream, treated with RO membranes, was remixed to create a product water to match the water quality of FPUD's imported water. The product water was pumped directly into the distribution systems. Distribution system improvements included two miles of 24-inch CML&C steel pipe, a remote 8 mgd pump station and 4 MG steel water storage tank. Project services included: 1.) distribution system modeling, 2.) establishment of water quality goals, 3.) evaluation of potential process treatment trains and configurations, 4.) preliminary design, 5.) final design, 6.) design service during construction phases, 7.) public outreach, and 8.) permitting assistance.



**IEC provided all the process mechanical design of 8 MGD treatment plant and product water pump station**



## EXPERIENCE AND PAST PERFORMANCE

### SAN LUIS REY WATER RECLAMATION FACILITY MAJOR PLANT UPGRADES PHASE 1

<b>CLIENT/LOCATION:</b>	City of Oceanside 300 North Coast Hwy Oceanside, CA 92054	<b>CLIENT CONTACT:</b> <b>PHONE:</b>	Rudy Guzman* 858.668.4705 * now with City of Poway
<b>DATES OF ENGAGEMENT:</b>	2015	<b>TOTAL PROJECT VALUE:</b>	\$1.6M

Ms. Costello, while at another firm, provided plant upgrades to a 15 million gallons per day (mgd) conventional activated sludge plants. Project components included replacement of influent and effluent aeration tank gates, 30" steel clarifier transfer pipes and plant water supply piping. The project also included concrete rehabilitation of the aeration tank influent channel and demolition of miscellaneous piping and appurtenances in the plant galleries. Individual aeration basins were taken out of service to complete the work. A maintenance of plant operations (MOPO) plant was developed that involved bypass pumping primary effluent around the out-of-service basins.

## LOCAL EXPERIENCE/EXCEPTIONS TO THIS RFP

### LOCAL EXPERIENCE

#### BEAR CREEK WASTEWATER TREATMENT PLANT

**CLIENT/LOCATION:** San Lorenzo Valley Water District  
13060 Highway 9  
Boulder Creek, CA 95006

**CLIENT CONTACT:** Rick Rogers  
**PHONE:** 831.430.4625  
**E-MAIL:** rrogers@slvwd.com

**DATES OF ENGAGEMENT:** May 2016 – Present

**TOTAL PROJECT VALUE:** \$40,000

IEC is providing process evaluation for a septic tank/biotrickling filter wastewater system for the San Lorenzo Valley Water District (District) intended to bring the District in compliance with the Central Coast Regional Water Resources Control Board's regulations for total nitrogen reduction and identify solutions to minimize inflow and infiltration during rainfall event. Through an exhaustive study involving sampling and testing, IEC recommended and implemented process and collection system improvements to bring the District in compliance with regulation.

#### Key Project Components & Issues

- Ongoing Violations with insufficient Total Nitrogen (TN) percent reduction
- Excess flow violations from inflow and infiltration (I&I)
- Operator emergency response training for sewer/WWTP spills

### PROFESSIONAL SERVICES AGREEMENT

IEC does not take any exceptions to this RFP including, but not limited to, the Professional Services Agreement.

# SCOPE OF SERVICES

## SCOPE OF SERVICES

### TASK 1 - PROJECT MANAGEMENT AND ADMINISTRATION

IEC will attend a project kick-off meeting with the District to confirm the direction of the project, discuss the communication protocol and the deliverables and schedule for the project. The kick-off meeting will include a site visit to the existing wastewater treatment plant. IEC will prepare an agenda and take and distribute meeting minutes. Additional communication will take by phone or email throughout the project. IEC will administer the project invoicing the District monthly. This task also includes time for an internal Quality Control/Quality Assurance (QA/QC) review of the technical memorandum.

Deliverable: Agenda and meeting minutes

### TASK 2 – DATA COLLECTION AND REVIEW

IEC will review as built drawings, the District permit and regulatory correspondence, previous reports and treatment plant data.

### TASK 3 - ALTERNATIVES ANALYSIS

IEC will document the existing conditions and future needs for wastewater treatment for the Bear Creek Estates. IEC will develop three alternatives to address compliance with the District's Waste Discharge Requirements (WDR), which require a 50% reduction in nitrogen. Each alternative will include a description, layout, a planning level cost opinion ( $\pm 30\%$ ) and Operations and Maintenance requirements including staff time. We will review the need for telemetry for remote monitoring and consider electrical and structural components of the project for cost estimating purposes. We will use industry standard planning level cost estimates for electrical and controls costs. No structural or electrical subconsultants are included in this scope and fee. IEC will recommend an alternative and outline steps to implement the alternative. We will identify the anticipated environmental compliance and permitting path for the project.

### TASK 4 - TECHNICAL MEMORANDUM DRAFT/FINAL

The technical memorandum will document existing conditions, future conditions and describe three alternatives to meet the requirements of the District's future needs. The technical memorandum will include layouts of each alternative, cost tables and describe permit and regulatory issues. A draft and final technical memorandum in Adobe PDF format will be provided to the District for review and comment. The time for District review as scheduled is one week. Following receipt of District comments, IEC will incorporate mutually agreed upon comments, finalize the report and submit a final version

Deliverable: A draft and final technical memorandum in Adobe PDF format.

## OPTIONAL TASK

### TASK 5 ENVIRONMENTAL PERMITS

#### Task 5.1 Kick-off Meeting, Site Visit, Research and Project Description

IEC will prepare a project description for clearance under CEQA and NEPA. IEC will conduct research of existing available agency data bases. The project description will be the basis for environmental analysis and will describe: Permits needed for project approval, and the scope of temporary construction activities, permanent changes occurring on the project site, and long-term project operations. A description of any federal grant funding sources will be provided. A comprehensive database review will be conducted to document existing baseline conditions and environmental commitments for the project as well as agency clearances and permits needed for project implementation. IEC will present our Draft Project Description and findings from background research to the District and will make our field and research notes available for District review upon request.

#### Task 5.2 Technical Studies

#### ***Technical Studies for Compliance with the Endangered Species Act, Migratory Bird Treaty Act and the National Historical Preservation Act (Section 106 Compliance)***

Project implementation will require compliance with resource protection legislation, including but not limited to Endangered Species Act, Migratory Bird Treaty Act, and the National Historical Preservation Act. Therefore, IEC will prepare the following technical studies to support environmental findings of fact:



**NHPA Section 106 Compliance:** IEC will prepare a Phase I Cultural Resources report for the project including a records search and literature review at Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California, to document potential for impacts to Historic Properties or cultural resources. IEC will conduct a field visit and shovel assessment of the existing conditions of the site pertaining to cultural and historic resources. IEC will conduct a Tribal Consultation meeting the requirements of SB 18 and AB 56 and for compliance with Section 106 of the National Historic Preservation Act.

**Biological Resource Assessment for Compliance with the ESA and MBTA:** IEC will conduct a field survey and mapping within a 500-foot and 1,000-foot radius for historic roosts, raptor nests and evidence of endangered species which are known to occur within this region per the Natural Diversity Data Base published by the California Department of Fish and Wildlife. This work will include records search and literature review of existing available studies and a field visit and field map of existing resources within the area of potential impact for the project that could be affected by elevated noise during construction. Recommendations will be provided to avoiding any potential for impacts related to nesting birds and raptors or any terrestrial species found during the field visit.

### **Task 5.3 CEQA and NEPA Documents**

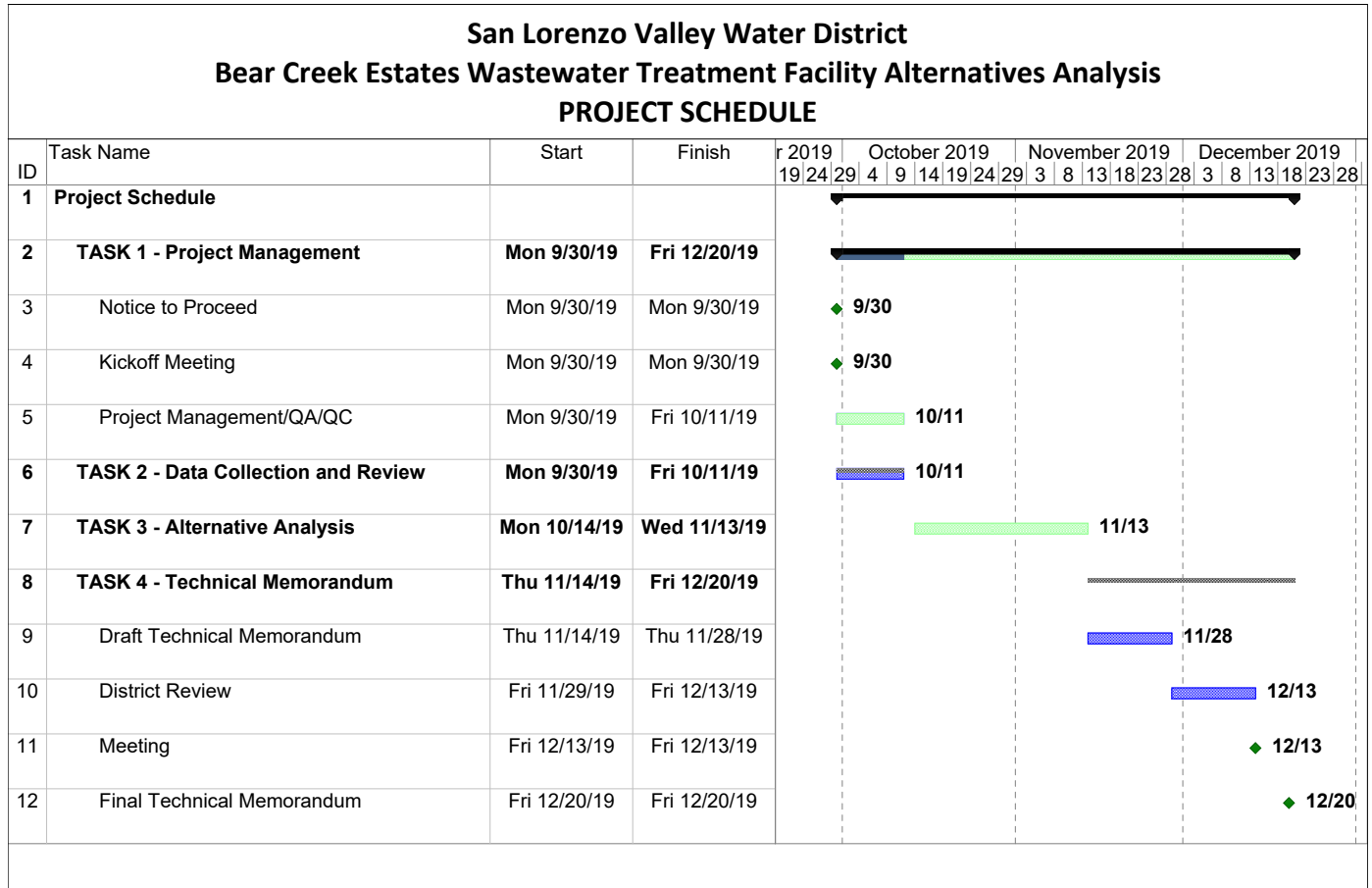
**NEPA Exclusion Checklist:** IEC will draft a NEPA Checklist for Categorical Exclusion on the Project using the Department of Interior Fish and Wildlife Service Form 3-2185. The completed checklist will contain a concise and thorough final project description and findings of fact supporting the conclusion that the Project will have less than significant effects on the environment from during construction, operation and maintenance. Because the Project is a small expansion of an existing land use, it is not expected to have substantial effect on the quality of the environment. This document will be given to the District for one round of comments, then finalized. The Categorical Exclusion from NEPA will be completed and printed in a PDF format and delivered to the District, USDA and Bureau of Reclamation.

Deliverables: Draft and Final NEPA Documents

**CEQA Notice of Exemption and Notice of Determination:** IEC will complete a draft CEQA Notice of Exemption and Notice of Determination using the forms from the CEQA Guidelines, Title 14, California Code of Regulations. These documents will contain a concise and thorough final project description that has been approved by the District, the finding of exemption, along with the guideline citation of the exemption, and statements of reasoning to support the exemption. These documents will be given to the District for one round of comments, then finalized. The Notice of Exemption will be completed and printed in a PDF format and delivered to the District. Notice of Exemption and Notice of Determination Forms will then be filed at the County Clerk's Office by IEC staff.

Deliverables: Draft and Final CEQA Documents

## SCHEDULE



# JANE COSTELLO, PE

## PROJECT MANAGER

### PROFESSIONAL REGISTRATION

Registered Professional Engineer  
California No. 82185  
Wisconsin No. 36427  
Minnesota No. 45344  
Arizona No. 48557

### EDUCATION

University of Minnesota,  
M.S. Civil Engineering, 1998

University of Wisconsin - Madison,  
B.S. Chemistry, 1984

### AFFILIATIONS

Water Environment Federation (WEF)

California Water Environment  
Association (CWEA)

### QUALIFICATIONS

Jane Costello has 33 years of experience in the water and wastewater field. Her experience includes project management and design of water and wastewater treatment plant improvements, office engineering services during construction and resident engineering. She frequently leads multi-disciplinary teams on her projects. Recent projects include: 1) Leucadia Wastewater District's Gafner Advanced Water Treatment Plant Improvements, 2) City of Oceanside San Luis Rey Wastewater Reclamation Plant Aeration Tank Improvements, 3) Clarifier and RAS/Scum Pumping Station, Ramona Municipal Water District. The projects include upgrades to treatment plant pumping, chemical mixing, aeration tank gate replacement including aeration tank partial bypass pumping while maintaining treatment requirements, and clarifier design, return activated sludge pump station retrofit and hydraulic improvements, respectively.

### PROJECT EXPERIENCE

**Bear Creek Wastewater Treatment Plant, San Lorenzo Valley Water District** – The Bear Creek Wastewater Treatment Plant (WWTP) experiences difficulties in meeting the nitrogen reduction require by its Wastewater Discharge Permit. IEC developed technical memoranda, which documented the conditions of excess flow due to inflow and infiltration (I&) into the collection system and WWTP plant process operation efficacy. A protocol for process testing, oversight of process improvements and an emergency spill response plan were developed. Optimization of recent process improvements is ongoing.

**Lester J. Berglund Water Treatment Plant, Chemical Building, and Tank Farm Upgrades, City of Poway** – IEC prepared design documents, bid phase and construction support for a retrofit of the City of Poway Lester J. Berglund Water Treatment Plant (WTP). The WTP plant is a conventional rapid mix, coagulation, sedimentation and media filtration plants using chlorine and ammonia for disinfection. The retrofit and rehabilitation project involved key water treatment plant processes such as disinfection, coagulation, and filtration. Modifications to the gaseous chlorine system were designed as well as replacement of polymer, permanganate chemical storage and handling systems and filter valves and actuators. The project included a specific Maintenance of Plant Operations (MOPO) specification and close coordination with City staff.

**Gafner Advanced Water Treatment Plant Improvements, Leucadia Wastewater District** – Project Manager for condition assessment and design for the 1.0 MGD Gafner Advanced Water Treatment Plant (AWTP) treats secondary effluent from the Encina Wastewater Plant in Carlsbad, CA. The Gafner AWTP consists of pumping, rapid mix, coagulation and flocculation tanks as well as enhanced settling sedimentation tanks, continuously backwashing sand filters and chlorine contact tank, chemical systems and a reclaimed water pump station. The improvement project includes pump replacement, mixer replacements, design of a new filter to waste system for "off spec" water, structural and electrical improvements, new grating, safety railings and steel beam pump supports.

**Santa Margarita Conjunctive Use Project Facilities, Fallbrook Public Utility District** – Senior Project Engineer for technical specification development for chemical feed system, sludge pumps and other process mechanical equipment.

**Fluoridation at Santa Teresa Water Treatment Plant, Santa Clara Valley Water District** – Senior Project Engineer for routed chemical piping from new fluoride metering pipe area to injection point at East and West Filter Gallery locations. Routed double containment piping through congested pipe trench, across existing filters and along gallery wall to existing injection location. The design



at the injection point included routing chemical piping in congested location which required leak detection sensor piping and new specification of a new Hastelloy injection quill. Additional services included design of an HVAC system for the fluoride metering pipe area.

**San Luis Rey Water Reclamation Facility Major Plant Upgrades Phase 1, *City of Oceanside***

– Project Manager for design of a plant upgrade project involving replacement of influent and effluent aeration tank gates, 30" steel clarifier transfer pipes and plant water supply piping. The project also included concrete rehabilitation of the aeration tank influent channel and demolition of miscellaneous piping and appurtenances in the plant galleries. The design plans and specifications included construction sequencing and bypass pumping plans and a maintenance of plant operations specifications.

**Odor Control Study, *City of Oceanside*** – Project Manager for a collection system odor study and chemical usage report for the City. The City's wastewater disposal system consists of gravity sewers, force mains, 22 lift stations, two wastewater treatment plants and an ocean outfall. The study documented odor "hot spots" using pressure testing and hydrogen sulfide gas monitoring. Chemical usage in the collection system as well as at the plants was analyzed and quantified. Odor scrubber performance was also evaluated.

**Santa Margarita Wastewater Treatment Plant Secondary Clarifier and Miscellaneous Improvements Project, *Ramona Municipal Water District***

– Project Manager and lead design engineer for this project, which included addition of one new 90-foot clarifier, modifications to the activated sludge splitter box to the clarifiers, RAS pumps and piping.

**Major Plant Rehab ORF Chemical Feed System, *Encina Wastewater Authority*** – Project manager for the design of several chemical feed systems, hypochlorite and caustic solution, for odor scrubbers at the Encina plant. Produced plans and specifications detailing the replacement of pumps and accessories, chemical piping, a pipe trench and restoration of concrete in the containment area; project at 90% design phase.

**Oceanside Boulevard Sewer Lift Station Relocation, *City of Oceanside*** – Project Engineer for a 2,000 gpm replacement sewer lift station to pump from the tributary area surrounding Oceanside Boulevard to the La Salina Wastewater Treatment Plant. The existing lift station is more than 60 years old and is in poor condition; due to the critical nature of this pumping facility, this project is a significant milestone in the ongoing rehabilitation and maintenance of the City's sewer infrastructure. The new lift station will consist of a custom design wet pit/dry pit station that has four (4) dry-pit submersible pumps, control valves, flow meter, odor control system, bioxide injection system, surge control system, standby power system, emergency storage, and site piping to connect to the existing sewer force main. The project also includes approximately 650 linear feet of gravity sewer main to convey flow from the existing lift station to the new lift station.

**Village Park No. 5 Pump Station Replacement, *Leucadia Wastewater District*** – Project Manager for pump station rehabilitation project consisting of a new submersible duplex station, valve vault, bypass connection, electrical upgrades, bypass pumping and sequence of construction specifications.

**Saxony Pump Station Rehabilitation, *Leucadia Wastewater District*** – Project Manager for pump station rehabilitation consisting of new pumps, valve, flow meter, wet well rehabilitation and bypass pumping.

**Storm Pump Station No. 1, City of Sunnyvale** – Project Engineer. The facility consists of, among other things, an approximately 25'x25' concrete masonry unit structure with a trash screen, two large natural gas powered duty pumps, one small electric pump, SCADA components, and three discharge pipes. The Preliminary Design report included conducting a complete investigation and analysis of the existing pump station to establish a basis of design for a comprehensive rehabilitation and update of the pump station. This included generating a complete list of deficiencies, and determining feasible options for rehabilitation and updating. The report presents alternatives, and includes preliminary construction schedules and cost estimates. The report was used to determine the scope of work to be used as a basis of design for construction documents. The project is currently in the design phase.

**MCES Empire/ Rosemount Interceptor Improvements Phase I and II** – Managed a \$70 million large pipeline conveyance project. Took charge of the project at critical design juncture. Succeeded in meeting all client deliverables and internal budgets. Managed multi-disciplinary engineers. Provided engineering services during construction.

**WWTF, Headworks/Hydraulic (H/H) Improvements, City of Moorhead (MN)** – Prepared plans and specification for new hydraulic structures, an equalization basin and pump station and new grit pumping equipment.

**WWTF, Moving Bed Biofilm Design and Construction, City of Moorhead (MN)** – Designed the aeration system for a Moving Bed Biofilm Reactor (MBBR) basin for nutrient removal. Provided engineering services during construction.

**Pecan Creek Water Reclamation Facility, City of Denton, TX** – Lead design engineer for a 21 mgd raw wastewater influent pump station, three new 100-ft diameter clarifiers and rehabilitation of three other clarifiers. Clarifier rehabilitation included specifying clarifier mechanism, coating, inlet piping, scum beach, skimmer, sludge scraper and walkway.

**Massard Wet Weather Improvements, City of Fort Smith, Arkansas** – Lead design engineer for a 20 mgd raw water influent pump station, retrofit of a RAS pump station and new and rehabilitation of secondary and primary clarifiers.

**P Street Wet Weather Improvements, City of Fort Smith, Arkansas** – Lead design engineer for a 24 mgd secondary effluent vertical turbine pump station, primary and secondary clarifier upgrades, splitter box and hydraulic gate modifications. Prepared a full hydraulic model for the plant in excel using surveyed surface water elevations.

**MCES Septage Management Study, St. Paul, MN** – Managed a feasibility study of septage management practices for large metropolitan service area. Coordinated stakeholder meetings. Developed a prototype septage receiving facility.

**Interceptor Master Plan, Metropolitan Council Environmental Services (MCES), St. Paul, MN** – Developed alternatives for large wastewater interceptor and pumping station system for county-size area in metropolitan Minneapolis. Options included interceptor relief sewers, river crossing, in-line storage, lift stations and complex connections in an urban setting. Project costs estimated near \$100 million.

**MCES South St. Paul Forcemain Improvements, St. Paul, MN** – Managed a \$500,000 facility planning effort for a four mile 48-inch forcemain replacement. Prepared facility plan compliant with State Revolving Fund criteria. Incorporated supporting environmental and archaeological work; assisted with public involvement efforts. Construction cost estimated at \$30 million.

**Septage Receiving Station, Coachella Valley Water District** – Project Manager for Construction Engineering Office Services for Septage Receiving Project at the Water Reclamation Plant 10 plant. Project elements include a building addition to house a grinder, bar screen, wash presses, grit classifiers and grit conveyors. Engineering services include submittal review, RFI response, and potential change order review, coordination with electrical and structural engineer for above services including structural inspection scheduling. Planned start-up of mechanical equipment and controls in May 2015.

**Miscellaneous Plant Rehab Projects, Encina Wastewater Authority** – Project Manager for fiscal year 2013 Major Plant Rehab Cooling Water Strainer, Filter Drain and Roof Safety Equipment (not Design Engineer). Project elements include installation of an automatic strainer on Encina 3WLC water line that sends cooling water to the cogeneration operation. Engineering services during construction include submittal review, RFI response, and potential change order review, coordination with Encina staff and electrical design engineer.

**Lift Station No. 73, City of Phoenix, AZ** – Managed the office and field construction services for this \$4 million lift station. Project was fast-track Construction Manager at Risk (CMAR) for spring-training baseball facility. Oversaw start-up of pumps, chemical scrubber and chemical feed system.

**River Falls Water Reclamation Facility, River Falls, WI** – Managed construction phase of \$3.1 million wastewater treatment retrofit of grit pumps, grit tanks, a secondary clarifier and RAS pumping.

**MCES Colby Lake Tunnel and Lift Station Improvements, St. Paul, MN** – Engineering services during construction included submittal review of submersible pumps, piping, valves; RFI responses, potential change order reviews and coordination with geotechnical engineering subconsultant.

**Bulk Chlorine Chemical Handling Improvements, Dallas Water Utilities, TX** – Construction office services for bulk chlorine retrofit at 200 mgd wastewater treatment plant.

**Chemical Handling and Storage Improvements Project, MN Regional Water Services** – Engineering services during construction including submittal reviews of mechanical equipment and coordination with other disciplines, responded to RFIs and reviewed potential change order. Also served as a full time resident engineer (RE) for two years for the construction of buildings, building additions, mechanical piping, equipment installation and instrumentation and controls for a 35 MGD surface water treatment plant; the RE role included the start-up of nine water treatment chemicals: chlorine gas, aqueous ammonia, Powder Activated Carbon (PAC), ferric chloride, alum, sodium hydroxide, fluoride, potassium permanganate and slaked lime.

**Water Booster Pump Station No. 9, Minneapolis Water Works, MN** – Provided engineering services during construction and served as a full time resident engineer for 18 months (concurrent

## JANE COSTELLO, PE

with the St. Paul project above) for ground-up construction of a 50 mgd water booster station including pump factory witness testing of one 20 mgd and one 30 mgd split case centrifugal pump.

**Flygt Pump Manufacturer's Application Engineer** – Directed engineers on pump selection, project hydraulics and product data.

**Wastewater Plant, City of Appleton, WI** – Lab/Industrial Pretreatment Manager. Managed a municipal wastewater plant laboratory and pretreatment program for 16 mgd plant under construction. Industrial users (19) were permitted from paper to dairy.

**Madison Metropolitan Wastewater Treatment Plant (WI)** – *Lab Analyst*. Conducted laboratory analysis for typical wastewater treatment plant samples.

**Pace Analytical Laboratory Services Inorganic Laboratory Manager, Minneapolis, MN**  
– Managed 12 chemists/technicians to produce laboratory results for multiple federal/state permitted programs.

## ROBERT S. WEBER, PE

### PRINCIPAL-IN-CHARGE

#### PROFESSIONAL REGISTRATION

Registered Professional Engineer  
California No. C59312

#### EDUCATION

State University of New York at  
Buffalo  
B.S. Civil Engineering, 1990

#### PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

American Water Works Association

American Consulting Engineers  
Council – California (Water  
Resources Committee)

#### AWARDS

**San Elijo Hills Pump Station –**  
ACEC CA Engineering Excellence  
Merit Award, 2015

#### Pala Mesa Tank –

ASCE San Diego Section: Award of  
Merit, 2012  
ASCE - Region 9: Outstanding Water  
Project Award, 2013

#### Carmel Valley Recycled Water Pipeline –

APWA San Diego-Imperial Counties  
Chapter: Project of the Year, 2013

#### Gano Reservoir and Unit X Pipelines –

ASCE San Diego Section: Award of  
Merit, 2004  
CELSOC (now ACEC CA)  
Engineering Excellence Merit Award,  
2006

#### 4S Ranch Water Reclamation Facility, Plant 'A' and 'B' Modifications –

APWA San Diego-Imperial Counties  
Chapter: Project of the Year, 2007

#### QUALIFICATIONS

Mr. Weber has 28 years of civil engineering and project management experience on a variety of municipal and public works water, wastewater, and recycled water projects. Specific project experience includes conveyance pipelines; reservoirs and tanks, water pump stations, and sewer lift stations. He has also successfully managed several as-needed services contracts for municipalities and water/wastewater utilities. Mr. Weber is thoroughly familiar with design standards, techniques and analytical methods, bid specifications, and cost estimating. His experience extends beyond civil engineering to include securing required project permits, fostering cooperative interagency approvals, and gaining community project acceptance.

Mr. Weber's project success based is on his ability to understand the client's needs and objectives and translate them into actions during execution of the project. He prides himself in involving the client in the project, and ensuring the technical staff understands the critical issues of the project. His engineering decisions and designs are based on careful considerations of project needs and specific site characteristics. His dedication to quality effectively manages project risks and controls construction and operational costs.

#### PROJECT EXPERIENCE

The following tables highlight the range of Mr. Weber's experience:

PIPELINES		
Olivenhain Trunk Sewer	2,800 lf 15-inch trunk sewer	City of Encinitas
South Oceanside Water & Sewer Main Replacement	7,400 lf 8-inch PVC water 2,771 lf 8-inch PVC sewer	City of Oceanside
Upas Street Pipeline	14,980 lf 8-inch - 12-inch PVC 8,160 lf 24-inch CML&C 1,640 lf 30-inch HDPE HDD	City of San Diego
Wolf Store Road 12-inch Inter-tie	5,000 lf 12-inch PVC	Rancho California Water District
West Feeder (ID-A) Pipeline Replacement	2,039 lf 12-inch DIP 269 12-inch fusible PVC 270 lf 16-inch fusible PVC	Rincon del Diablo Municipal Water District
B2/B3 Forcemain	2,600 lf 24-inch PVC 1,400 lf 14-inch PVC	Leucadia Wastewater District
District 1, 4, & 6 Water Main Replacements	11,130 lf 6-/16-/18-inch ductile iron	City of Pomona
Mission San Luis Rey Waterline	3,000 lf 10-inch PVC	City of Oceanside

PUMP STATIONS		
San Elijo Hills Pump Station	2,700 gpm	Vallecitos Water District
Tenaja Pump Station	6,300 gpm	Rancho California Water District
Batiquitos Pump Station Rehabilitation	40 MGD	Leucadia Wastewater District
North Bay Pump Station Project	3,500 gpm	Lake Arrowhead Community Services District

STORAGE		
Pala Mesa Tank	6.0 MG prestressed concrete	Rainbow Municipal Water District
Post Road Tank	3.5 MG steel	Eastern Municipal Water District
Salter Road Tank	1.0 MG steel	Eastern Municipal Water District
640 Reservoir	(2) 10 MG prestressed concrete	Otay Water District
North Twin Oaks Tank No. 2	3.5 MG steel	Vallecitos Water District



## RICK KENNEDY, PE

### QA/QC & TECHNICAL REVIEW

#### PROFESSIONAL REGISTRATION

Registered Professional Engineer  
California No. M18710

Certified Construction Documents  
Technologist (CDT)

#### EDUCATION

California Polytechnic State  
University, San Luis Obispo  
B.S. Mechanical Engineering, 1975

#### AFFILIATIONS

American Water Works Association

California Water Pollution Control  
Association

Water Environment Federation

#### HEALTH & SAFETY TRAINING

Ergonomics

Health & Safety Training for Project  
Management

#### PROJECT AWARDS

**AWTP Ozone –**  
ASCE National 2013 Civil  
Engineering Achievement Award

ACEC National 2011 Recognition  
Award

ASCE California 2011 Outstanding  
Water Treatment Project

ACEC California 2011 Engineering  
Excellence Award

AWPA San Diego 2011 Project of the  
Year Award Project

ASCE San Diego 2010 Project of the  
Year Award Project

**AWTP Flocculation and  
Sedimentation Basins –**  
ASCE San Diego 2007 Award of  
Excellence

#### QUALIFICATIONS

Much of Mr. Kennedy's 42 year career has been devoted to the management of the design of water treatment plant projects. Recent projects include the City of San Diego's Miramar Water Treatment Plant Clearwells Project (215 mgd- ongoing), KSD Joint Venture's (for Poseidon Water) Carlsbad Desalination DBO Project (50 mgd - in construction), the San Diego County Water Authority's DBO Twin Oaks Valley Water Treatment Plant (owner's agent for this 100 mgd plant), and the ASCE 2013 Outstanding Civil Engineering Award winner - City of San Diego's Alvarado Water Filtration Plant Project (200 mgd).

#### PROJECT EXPERIENCE

**Cost Analysis of the La Salina Wastewater Treatment Plant Options, City of Oceanside –** Project Manager for the effort to evaluate alternatives associated with the future of the City's the La Salina Wastewater Treatment Plant. Alternatives evaluated include: 1.) upgrading the plant, 2.) replacing the plant with a membrane bio-reactor (MBR), and 3.) replacing the plant with a pump station to move waste water to the City's San Luis Rey treatment facility where it could be treated to reclaimed water standards and distributed to costumers. Alternative 3 was the recommended.

**Santa Margarita Conjunctive Use Project Facilities, Fallbrook Public Utilities District (FPUD) –** Project Manager for the design of treatment facilities associated with an agreement between FPUD and the federal government that settled a century long dispute over water rights of the Santa Margarita River. The agreement included Camp Pendleton providing approximately 8 mgd of ground water to FPUD, actual flowrates being dependent on the month of the year and rainfall of the previous year, that was high in iron, manganese, and TDS. The treatment train included 8 mgd of iron and manganese utilizing greensand media within six 12' diameter and 30' long pressure vessels. A side stream treated with RO membranes was remixed to create a product water to match the water quality of FPUD's imported water. The product water was pumped directly in the distribution systems. Distribution system improvements included two miles of 24-inch CML&C steel pipe, a remote 8 mgd pump station and 6 MG steel water storage tank. Project services included: 1.) distribution system modeling, 2.) establishment of water quality goals, 3.) evaluation of potential process treatment trains and configurations, 4.) preliminary design, 5.) final design, 6.) design service during construction phases, 7.) public outreach, and 8.) permitting assistance.

**Overland Trail Lift Station Rehabilitation, Fallbrook Public Utilities District –** Project Manager for the rehabilitation of a high head (two pumps-in-series) wastewater lift station. The project includes a permanent diversion of the District's Anthony Corner's Lift Station flow to the Overland Trail Lift Station with a subsequent increase in pump capacity and overall footprint of the station. The electrical service will be increased due to larger pumps and the existing control building reconfigured for larger electrical gear. Other improvements include an increase in the size of the dry pit and a new cast-in-place top of the wet well. The flow from Anthony's Corner Lift Station will flow to an existing diversion box on Mission Road in Fallbrook. One 8-in sewer, the Mission Oaks sewer, will be relocated to connect with Mission Road trunk sewer and the lift station demolished.

**Leucadia Pump Station, Leucadia Wastewater District –** Project Manager for the condition assessment, preliminary and final design for a 4.0 MGD wastewater lift station for the Leucadia Wastewater District. The project will include the reuse of two relatively new 200 hp VFDs for two of the new 150 hp pumps, all new ductile iron piping, valve and appurtanences. The new pumps will be dry pit submersible type. The T-locked wet well will be repaired, and odor control equipment and other minor equipment replaced.

# ANTHONY SALVANI, EIT

## PROJECT ENGINEER

### PROFESSIONAL REGISTRATION

Certified Engineer-in-Training  
California No. 150915

### EDUCATION

San Diego State University  
B.S. Civil Engineering, 2014

### AFFILIATIONS

American Society of Civil Engineers

Chi Epsilon - San Diego State  
University Chapter Past President

Tau Beta Pi

### QUALIFICATIONS

Mr. Salvani is an Engineer III with experience in design engineering and AutoCAD drafting on a wide variety of projects including water and recycled water pipelines, pump stations, sewer gravity mains, sewer force mains, groundwater wells, and water treatment plant upgrades. Anthony specializes in the development of details and pipeline plan and profile drawings using AutoCAD and Civil 3D, development of detailed cost estimates, and preparation of preliminary design reports.

### PROJECT EXPERIENCE

**Lester J. Berglund Water Treatment Plant, Chemical Building, and Tank Farm Upgrades, City of Poway** – Design Engineer. IEC prepared design documents, bid phase and construction support for a retrofit of the City of Poway Lester J. Berglund Water Treatment Plant (WTP). The WTP plant is a conventional rapid mix, coagulation, sedimentation and media filtration plants using chlorine and ammonia for disinfection. The retrofit and rehabilitation project involved key water treatment plant processes such as disinfection, coagulation, and filtration. Modifications to the gaseous chlorine system were designed as well as replacement of polymer, permanganate chemical storage and handling systems and filter valves and actuators. The project included a specific Maintenance of Plant Operations (MOPO) specification and close coordination with City staff.

**Miramar Water Treatment Plant Clearwell Improvements, City of San Diego** – Design Engineer for a 215 mgd low lift pump station and chlorine contact chamber. The treatment plant had two issues in need of resolution. One, a recent upgrade to the plant included a new ozone system functioning as the primary disinfectant, but in order to allow the conventional downstream gravity filters to go biological to further reduce TOC in the treated water, the CDPH required that emergency chlorine disinfecting facilities be provided. Two, at high flows and high levels in the on-site clearwells the plant's 215 mgd design capacity could be limited to only 80 mgd even when peak distribution demands could reach 260 mgd.

**FY 15 Gravity Sewer Repair Project, Leucadia Wastewater District** – Design Engineer for the design of 2,829 linear feet of cured-in-place pipe lining, one manhole rehabilitation, replacement in place of 916 linear feet of 8" gravity sewer main, two excavated gravity sewer repairs.

**Scott's Valley Sewer Rehabilitation, Leucadia Wastewater District** – Design Engineer for the rehabilitation of three manholes via cured-in-place manhole lining, 678 linear feet of 15" cured in place pipe lining, sewer bypassing for cured-in-place pipe lining, six manholes rehabilitated via epoxy manhole lining.

**Storm Pump Station No. 1, City of Sunnyvale** – Design Engineer. The facility consists of, among other things, an approximately 25'x25' concrete masonry unit structure with a trash screen, two large natural gas powered duty pumps, one small electric pump, SCADA components, and three discharge pipes. The Preliminary Design report included conducting a complete investigation and analysis of the existing pump station to establish a basis of design for a comprehensive rehabilitation and update of the pump station. This included generating a complete list of deficiencies, and determining feasible options for rehabilitation and updating. The report presents alternatives, and includes preliminary construction schedules and cost estimates. The report was used to determine the scope of work to be used as a basis of design for construction documents. The project is currently in the design phase.

# TERRY SWEITZER

## CADD DESIGNER

### EDUCATION

York College of Pennsylvania,  
B.S. Marketing, 2012

Harrisburg Area Community College,  
A.A. Civil Design and Technology,  
2005

York Technical Institute  
A.A. Computer Aided Drafting, 1998

### AFFILIATIONS

AutoCAD

Microstation V8i

### QUALIFICATIONS

Mr. Sweitzer has 19 years of experience in several areas of the civil engineering industry; ranging from civil design to marketing and business development.

### PROJECT EXPERIENCE

**Overland Trail Lift Station Rehabilitation, Fallbrook Public Utility District** – Lead CADD Designer for the rehabilitation of a high head (two pumps-in-series) wastewater lift station. The project includes a permanent diversion of the District's Anthony Corner's Lift Station flow to the Overland Trail Lift Station with a subsequent increase in pump capacity and overall footprint of the station. The electrical service will be increased due to larger pumps and the existing control building reconfigured for larger electrical gear. Other improvements include an increase in the size of the dry pit and a new cast-in-place top of the wet well. The flow from Anthony's Corner Lift Station will flow to an existing diversion box on Mission Road in Fallbrook. One 8-in sewer, the Mission Oaks sewer, will be relocated to connect with Mission Road trunk sewer and the lift station demolished.

**Lester J. Berglund Water Treatment Plant, Chemical Building, and Tank Farm Upgrades, City of Poway** – Lead CADD Designer for design documents, bid phase and construction support for a retrofit of the City of Poway Lester J. Berglund Water Treatment Plant (WTP). The WTP plant is a conventional rapid mix, coagulation, sedimentation and media filtration plants using chlorine and ammonia for disinfection. The retrofit and rehabilitation project involved key water treatment plant processes such as disinfection, coagulation, and filtration. Modifications to the gaseous chlorine system were designed as well as replacement of polymer, permanganate chemical storage and handling systems and filter valves and actuators. The project included a specific Maintenance of Plant Operations (MOPO) specification and close coordination with City staff.

**Santa Margarita Conjunctive Use Project, Fallbrook Public Utilities District** – Design team member providing CAD support for an 8 MGD groundwater water treatment project that includes 11,300 ft of 24" welded steel pipe for product water delivery and a pump station. The pipeline follows public roadways, District easements, and includes several points of connection to the existing system.

**South Oceanside Waterline Replacement & Sewer Upsizing, City of Oceanside** – CADD Designer for approximately 7,400 lf of replacement water distribution mains and 2,771 lf of sewer upsizing to 8-inch, with 4 manhole rehabilitations and 8 manhole replacements, within residential areas of south Oceanside. The project encompassed evaluation of replace-in-place versus parallel alignments as well as re-routing of several existing water services in order to eliminate a problematic alley main.

**MBC Cooling Water System Chiller Upgrade, City of San Diego** – Lead CADD Designer for replacing and optimizing the existing Chilled Water System (CW System) at the City of San Diego's MBC facility. The project replaces two 370 ton chillers, that provide ambient environment cooling for multiple on-site buildings, with three 250 ton chillers and upgrades the CW System necessary due to operational and reliability issues, outmoded controls, and overall age of the equipment. Three primary pumps were replaced with new and the addition of a fourth. Two secondary pumps were replaced with the same capacity and with VFD's to control flow to the air handling units based on cooling demand. Ancillary equipment including air separator, expansion tank, chemical injection pot, and makeup water feed system were also replaced.

FEE ESTIMATE  
SAN LORENZO VALLEY WATER DISTRICT  
BEAR CREEK ESTATES  
WASTEWATER TREATMENT FACILITY ALTERNATIVES ANALYSIS

Task/ Subtask	Task/Subtask Description	Principal-In-Charge (Rob Weber)	Quality Control/Quality Assurance (Rick Kennedy)	Principal Environmental (Lori Trottier)	Project Manager (Jane Costello)	Engineer III/CAD III Designer (Anthony Salvani/Terry Sweitzer)	Environmental Specialist II (Karla Topete)	Word Processor (Annette Moore)	Subtask Labor-Hours	Subtask Labor Cost	Direct Cost	Total Cost
		\$245.00	\$230.00	\$230.00	\$220.00	\$150.00	\$150.00	\$65.00				
<b>TASK 1</b>	<b>Project Management</b>											<b>\$6,505</b>
	Project Management/QA/QC	1	4		4				9	\$2,045		\$2,045
	Kickoff Meeting/Site Visit				8	8			16	\$2,960	\$1,500	\$4,460
<b>TASK 2</b>	<b>Data Collection and Review</b>											<b>\$4,160</b>
	Data Collection and Review				8	16			24	\$4,160		\$4,160
<b>TASK 3</b>	<b>Alternatives Analysis</b>											<b>\$18,900</b>
	Develop three alternatives			2	16	32	8		58	\$9,980		\$9,980
	Estimate Cost Opinions for Alternatives				2	12			14	\$2,240		\$2,240
	Selection of Alternative				8	12			20	\$3,560		\$3,560
	Implementation Plan and Schedule				6	12			18	\$3,120		\$3,120
<b>TASK 4</b>	<b>Technical Memorandum</b>											<b>\$8,485</b>
	Draft/Final Technical Memorandum	1			32	8			41	\$8,485		\$8,485
		2	4	2	84	100	8	0	200			
		\$490	\$920	\$460	\$18,480	\$15,000	\$1,200	\$0		\$36,550	\$1,500	<b>\$38,050</b>

FEE NOT TO EXCEED: **\$38,050**

OPTIONAL TASK

<b>TASKS 5</b>	<b>Environmental Permits</b>											<b>\$33,463</b>
<b>5.1</b>	Kick-off Meeting, Site Visit, Research and Project Description			22			45		67	\$11,810	\$800	\$12,610
<b>5.2</b>	Technical Studies			2			2		4	\$760	\$10,373	\$11,133
<b>5.3</b>	CEQA and NEPA Documents			24			28		52	\$9,720		\$9,720
		0	0	48	0	0	75	0	123			
		\$0	\$0	\$11,040	\$0	\$0	\$11,250	\$0		\$22,290	\$11,173	<b>\$33,463</b>

FEE NOT TO EXCEED: **\$33,463**