

# Olivehurst Public Utility District

## Agenda Item Staff Report



**Meeting Date: September 19, 2019**

### Item description/summary:

***Consider awarding the RFP for water study to serve the South Yuba County.***

Due to the rapid expansion and interest in the South Yuba County area, options for water service in the area must be considered. We have received rough cost estimates in the past but they range widely. This RFP would aim to give us a detailed cost estimate so that we can better understand our position moving forward. Only one firm submitted a proposal: Affinity Engineering with a bid of \$47,000 for the tasks described in the RFP.

### Fiscal Analysis:

Yuba Water Agency approved funding for this study up to \$50,000.

### Sample Motion/Staff Recommendation:

Move to award the contract to Affinity Engineering in the amount of \$47,000 for tasks 1-6 in their proposal.

Prepared by:

Christopher Oliver, Public Works Engineer

---

**OLIVEHURST PUBLIC UTILITY DISTRICT**  
**Bid Opening**

Date/Time: September 10, 2019 at 3:30 P.M.

Present: General Manager and District Clerk

Location: General Manager's Office, 1970 9<sup>th</sup> Ave, Olivehurst



Project: Water Study RFP

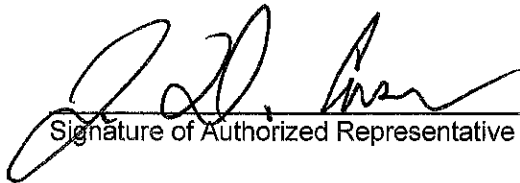
The following bids were received:

<b>1)</b> Affinity Engineering \$ 47,000
<b>2)</b>
<b>3)</b>
<b>4)</b>
<b>5)</b>
<b>6)</b>
<b>7)</b>
<b>8)</b>

## ATTACHMENT B: COVER SHEET

Name of Person, Business or Organization:	Affinity Engineering Inc.
Federal Tax ID Number:	27-0634866
Contact Person – Name	Jim Carson
Contact Person – Address	3221 Fitzgerald Road Rancho Cordova, CA 95742
Contact Person – Phone Number (s)	(916) 613-7582
Contact Person – e-mail address	jcarson@affinityengineering.com

By signing this **Cover Sheet** I hereby attest: that I have read and understood all the terms listed in the RFP; have read and understood all terms listed in this proposal; that I am authorized to bind the listed entity into this agreement; and that should this proposal be accepted, I am authorized and able to secure the resources required to deliver against all terms listed within the RFP as published by OPUD, including any amendments or addenda thereto except as explicitly noted or revised in my submitted proposal.

  
\_\_\_\_\_  
Signature of Authorized Representative

James D. Carson, P.E.  
\_\_\_\_\_  
Printed Name of Authorized Representative

September 10, 2019  
\_\_\_\_\_  
Date

## Table of Contents

Introduction..... 1

Services and Scope (Item 6.2 of RFP)..... 2

    Task 1: Water Demand Analysis..... 2

    Task 2: Transmission Main Alignment ..... 2

    Task 3: Water Supply..... 3

    Task 4: Well and Reservoir Facility (Facility) Siting..... 3

    Task 5: Water Modeling..... 4

    Task 6: Study Summary TM..... 4

Background and Experience (Item 6.2.1 of RFP) ..... 6

    Selected Project Experience..... 6

    Current, Pending, or Past Litigation ..... 7

Staffing (Item 6.2.2 of RFP)..... 8

    James D. Carson, PE (Affinity Engineering) ..... 8

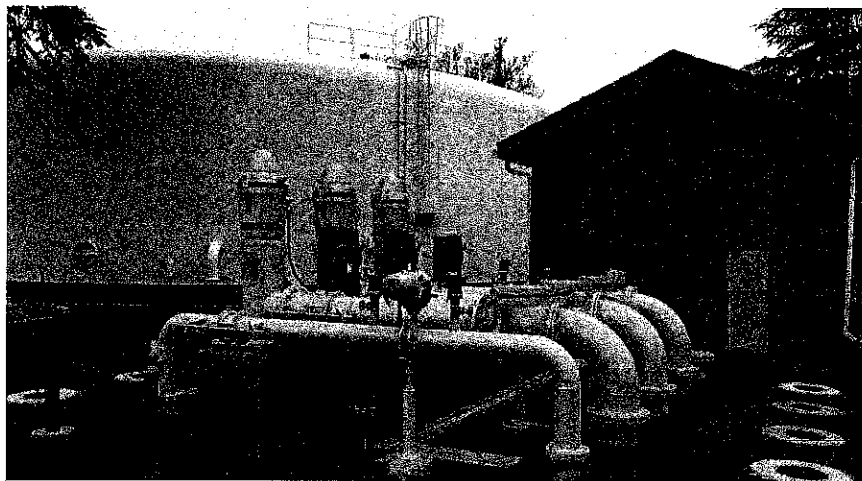
    Sara Rogers, PE, QSD (Domenichelli and Associates) ..... 9

Proposed Costs (Item 6.3 of RFP)..... 10

    Fee Estimate..... 10

    Rate Schedules ..... 11

**\*\* End of Table of Contents \*\***



**RLECWD Reservoir and Pump Station by Affinity**

## Introduction

Affinity Civil Engineering, Inc. (Affinity) is pleased to provide our Proposal to the Olivehurst Public Utility District (District) in response to the District's Request for Proposals (RFP) titled, "Engineering Services: Water Study for South Yuba County". Affinity as the prime consultant is teaming (Team) with Domenichelli and Associates, Inc. (Domenichelli) to provide services with demonstrated expertise and experience in the following areas:

- Water System Planning
- Water Production, Treatment, and Storage Design
- Pipeline Design
- Water Modeling

Affinity has been working with the District in support of the water side of operations for over 10 years. Jim Carson has been working with the District since 2005. We also assisted the District in scoping the Water Study (Study) prior to this RFP. Finally, our Team has the expertise and ability to engineer and design all the elements of any distribution system and water supply through construction which the District may pursue once this Study is complete.



**OPUD Well 34 – Designed by Affinity**

Affinity has been providing civil engineering services to water agencies for over 10 years. Domenichelli has been providing civil engineering services to water, storm drain, and sanitary sewer agencies for over 17 years. Our key Team members are registered professional engineers with over 50 years of combined experience and include Jim Carson of Affinity (34 years) and Sara Rogers of Domenichelli (19 years).

Based on previous projects which Affinity and Domenichelli have completed successfully together, the District is assured that our work will be seamless, efficient, and complete. However, to avoid any confusion in matters of communication with the District, Jim Carson of Affinity will act as the single point of contact. As the prime consultant for this project, Affinity will be solely responsible for completing the services described in this proposal.

There is no conflict of interest between any Team member and the District.

## Services and Scope (Item 6.2 of RFP)

Affinity will provide the following services as its scope under this RFP. Assumptions and deliverables (if any) are shown for each task.

### **Task 1: Water Demand Analysis**

- A water service area map will be developed that defines where OPUD intends to serve water as part of this project including Rancho Road and the sports and entertainment zone
- The County's general plan land use map will be utilized to define land uses within this water service area
- Water demands will be created based on typical water demands for the types of land uses to be served in the water service area
- Typical water demands for the land uses will be developed based on research and interviews of other Districts throughout the northern Sacramento Valley (if available) as well as from the District's own records and information
- Fire flow demand will be based on the local fire department's requirements for the type of land use (or typical buildings associated with these land uses)

#### Assumptions

- A single fire department serving the water service area can be identified

#### Deliverables

- Water demand analysis draft technical memorandum (TM) with a recommended water demand and the water service area map
- Water demand analysis final TM incorporating all District comments on the draft TM and reporting the water demand selected by the District

### **Task 2: Transmission Main Alignment**

- A transmission main alignment will be completed to service all the land uses within the water service area
- Alternative routes will be presented where possible to minimize the cost or local impacts of freeway crossings
- Considerations will be made for a future connection with the Hard Rock Casino's water system

#### Assumptions

- There will only be 2 freeway crossings
- The pipeline alignments are intended to show general location and pipe size only

- This task does not include utility conflicts, drainage canal crossings, plan and profile, or any other detailed engineering

Deliverables

- Drawing showing proposed and alternate transmission main alignment(s)

**Task 3: Water Supply**

The primary water supply for the new development's maximum day demand will come from a new well that will most likely require manganese treatment. Peak hour and fire flow supply will be provided from a reservoir and pump station. An interconnection with OPUD's existing water system will be constructed to provide emergency backup water supply. Well and reservoir capacity will be designed to meet the ultimate buildout of the proposed water service area.

Assumptions

- The site layout drawing will be to supply the ultimate buildout of this water service area only and is provided as a basis to size the property

Deliverables

- Drawing showing facility concept and capacity of the well, reservoir, and pump station

**Task 4: Well and Reservoir Facility (Facility) Siting**

Potential Facility locations will be identified and evaluated based on:

- Land availability
- Hydraulic considerations to minimize operational, transmission main and/or other construction costs to supply the proposed water service area
- Proximity to:
  - Drainage ditches (for pump to waste and site drainage)
  - 480 V, 3 phase power
  - Natural gas (standby generator)
  - Roads
  - Telephone/internet
- Hydrogeological considerations will be looked at to identify locations that could produce the highest water quality and areas of potential contamination

Assumptions

- The hydrogeological considerations are beyond what was specifically requested in the RFP

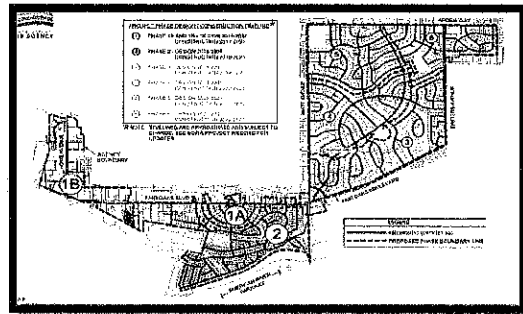
- The hydrogeological considerations will be provided by Larry Ernst of Wood Rodgers who has over 35 years of experience with ground water wells and basins throughout northern California

Deliverables

- Updated water service area map that shows alternative water supply facility locations

**Task 5: Water Modeling**

A water model will be created that simulates how the new water system will operate. The water modeling will be used to look at different main sizes and water facility locations to confirm that the required water system pressure will be maintained during peak hour demand and fire flow events.



**SCWA Water Model by Domenichelli**

Assumptions

- Up to three model runs will be performed to size the transmission mains and assist in determining the best location of the water supply facilities
- The modeling software used will be either H2ONet or InfoWater

**Task 6: Study Summary TM**

This TM will summarize the results of the earlier tasks including documenting any District comments or decisions. It will include the following:

- Final drawing of the water service area include land uses, pipeline alignments (pipeline routes, interconnection(s), freeway crossings), and facility location
- Model run results

The TM will also include an opinion of probable cost (OPC) which will include the following:

- Preliminary Planning (fee for this proposal)
- Preliminary Engineering and Hydrogeological
- Environmental (CEQA)
- Legal
- Local Agency Formation Commission (LAFCo) for Service Boundary
- Property and Easement acquisitions
- Detailed Engineering, Hydrogeological, and Surveying



- Permitting
  - Cal Trans
  - Encroachment
  - Well drilling
  - DDW permit amendment
  - NPDES discharge permit
  - Stormwater Pollution Prevention Plan (SWPPP)
  - Air Quality (Standby Generator)
- Construction
  - Transmission mains
  - Intertie to OPUD's existing water system
  - Water supply well with manganese treatment
  - Reservoir and pump station
- Professional Services During Construction
- OPUD Administrative Costs
- Contingency

Assumptions

- The OPC will be based on the results of the modeling and the District's decisions made during the previous tasks

Deliverables

- Draft TM will be submitted to the District for their comments
- Final TM will be submitted that includes the District's comments

\*\* End of Services and Scope \*\*

## Background and Experience (Item 6.2.1 of RFP)

The key team members of Affinity and Domenichelli have extensive experience in water system modeling and facility design that will enable our team to provide a water system and supply plan that the minimizes costs while efficiently serving the District's future customers. The selected projects below show relevant projects that our team has recently completed.

### **Selected Project Experience**

#### Affinity: Well N39 Rutland – Sacramento Suburban Water District

Reference: Shawn Shedenhelm, Sacramento Suburban Water District, (916) 806-0882

Designed and provided services during construction for a 1,500 gpm groundwater well. The facility included a variable speed 1,500-gpm well pump, control building, natural gas generator, pump to waste, site grading and paving, stubs for future treatment, PLC, and SCADA integration with Tesco Controls. The project won the 2016 ASCE Energy Project of the year award for the ASCE Sacramento Section.

#### Affinity: L Street Reservoir and Pump Station – Rio Linda/Elverta Community Water District

Reference: Pat Goyet, Rio Linda/Elverta Community Water District, (916) 796-5949

Designed and provided services during bidding and construction for a 1.2 MG welded steel reservoir and 6,000-gpm booster pump station. The facility included site grading and paving, landscaping, storm drain, variable speed booster pumps, altitude MOV valve, pump to waste system, PLC, and SCADA integration with Tesco Controls. The project won the 2014 ASCE Environmental Project of the year award from ASCE Sacramento Section.

#### Affinity: Well 34 – Olivehurst Public Utility District

Reference: John Tillotson, P.E., Olivehurst Public Utility District, (530) 682-1114

Prepared plans and specifications along with services during construction for a new variable speed 3,500 gpm well pump and treatment system. The facility included the design of a deep well turbine pump, manganese treatment system with backwash tank and recycle system, site drainage and grading, landscaping, discharge piping to connect the well to water system, natural gas/propane backup generator, chemical building and disinfection system, low level lighting that minimizes light pollution to neighbors, and facility controls. The facility has been on line for 8 years and has been saving the District approximately 40 percent per gallon over the cost of the District's other water supply wells.

#### Domenichelli: Arden Service Area Improvements Implementation Plan – Sacramento County Water Agency

Reference: Helen Rocha, P.E., Sacramento County Water Resources, (916) 876-7191

Multi-year, multi-million-dollar project replacing approximately 38 miles of new distribution pipe and installation of approximately 3,000 meters. The project involved updating an existing system hydraulic model with existing system improvements and changes to well operation. The model was converted to a dynamic model and was calibrated to existing conditions using a series of fire flow tests. The model was used to determined areas of undersized piping. Proposed phasing and new pipelines were sized using the model. The model included 12 wells and over 38 miles of pipelines.



## Background and Experience (Item 6.2.1 of RFP)

### Domenichelli: Water Main Replacement and Meter Retrofit – Sacramento Suburban Water District

Reference: David Espinosa, Sacramento Suburban Water District, (916) 972-7171

Served as project engineer and provided construction management services on multiple water main replacement projects comprised of over 150,000-feet of 12-, 8-, 6-inch mainlines. Work included the installation of and replacement of thousands of water meters. On several projects, inspection services were required at night on major streets (e.g. Watt Ave, Arden Blvd, and Fulton Ave).

### Domenichelli: Alta Loop and Cable Road Water Main Project – Placer County Water Agency

Reference: Jeremy Shepard, Placer County Water Agency, (530) 823-2066

Developed a hydraulic model of the Alta, CA water system as a task to their Alta Loop and Cable Road Water Main Replacement design contract with Placer County Water Agency (PCWA). The hydraulic model was created to simulate the existing Alta water system and to analyze the proposed project system improvements to determine the appropriate pipe sizes and resultant available fire flow. D&A developed the model using Inforwater and utilized PCWA SCADA and fire flow test data to calibrate the model.

The system model includes approximate 8 miles of 2-inch through 10-inch diameter water main and material type, three (3) existing pressure reducing stations (PRS) and one (1) new PRS, eighteen (18) existing fire hydrants and eight (8) new fire hydrants, and a tie-in to PCWA existing 10-inch high-pressure transmission pipe. D&A will provide PCWA staff on-site training to run various hydraulic simulations and direction on analyzing the model results.

### **Current, Pending, or Past Litigation**

Neither Affinity nor Domenichelli have any current, pending, or past litigation (within the last 10 years) to report.

**\*\* End of Background and Experience \*\***

## Staffing (Item 6.2.2 of RFP)

Each member of our Team (both as firms and as individuals) have a proven record of successfully completing hundreds of projects related to water. Because of the small size of our firms, our overhead is lower than traditional firms resulting in cost savings to the District. These saving shows up in our lower overall rates which do not include any additive hourly fees (i.e. associated project costs or related project fees) that typical larger engineering firms charge. Our project teams will be mostly comprised of experienced engineers working directly on the project. Our two key team members will be Jim Carson of Affinity and Sara Rogers of Domenichelli. There respective qualifications are as follows.

### **James D. Carson, PE (Affinity Engineering)**

#### *Education*

- B.S., Civil Engineering, Colorado State University, 1985
- Master of Business Administration, University of Phoenix, 2002

#### *Registrations*

- Registered Professional Engineer, Civil, No. 043839, California, 1989
- Registered Professional Engineer, Civil, No. 35379, Arizona, 2000

*Home Office Location:* Rancho Cordova, CA

#### *Expertise*

- 34 years of experience
- Water System Planning: Master Planning, modeling, micro and macro hydraulic analysis, water system/zone demand analysis
- Asset management: Facility assessments, life asset planning, cost estimating
- Water Treatment: hexavalent chromium, iron, manganese, arsenic, hydrogen sulfide, and conventional surface water treatment
- Water Supply: deep well turbines, close coupled boosters, inline boosters, lake and stream intake boosters, intra and interconnections
- Reservoirs: concrete, welded steel, and bolted steel
- Distribution: pipeline design and avoidance of utility conflicts using C900 PVC, ductile iron, steel and concrete
- Regulatory: DDW permit amendments, DDW water quality sampling program development, DDW system wide Operational and Maintenance manual, CEQA compliance, NPDES permitting, air quality permitting
- Water Quality: Title 22 water quality, bacteriological and heterotrophic plate count sampling, flushing and disinfection planning and monitoring of distribution systems
- Operations: facility operation and maintenance manuals, testing and start up, and operator training

James Carson has more than 34 years of experience covering all aspects of water utility engineering, operation, and management. His career began as a staff engineer for a large investor-owned water company in the Los Angeles area, rising to the level of Vice President in charge of Water Quality. Currently, Mr. Carson is the President and Chief Executive Officer of Affinity Engineering, a position he has held since founding the company in 2009. In addition to his many accomplishments, Mr. Carson provided legal testimony that contributed to a

favorable settlement for the water company which helped mitigate the loss of wells associated with groundwater contamination in Sacramento County. He was also signatory to a groundwater basin management plan in Sacramento County that forged relationships between environmental, development and water utility stakeholders.

Throughout his career, he has had to manage employees, customers, budgets, schedules, regional water groups, and regulatory officials. His experience includes overseeing the operations, master plan preparation, design, contracting, project start-ups, and customer service for many water systems throughout California. These systems ranged in size from 25 to 150,000 water service connections. As a District Manager, he was responsible for the day-to-day operations and customer service functions for the cities and communities of Clearlake, Rancho Cordova and Bay Point. As a senior engineering, he was responsible for creating system master plans, facility assessments, developing innovative solutions to meet water supply and water quality requirements, and developed and presented engineering reports to governing bodies (water district boards, city councils). Mr. Carson designs provide value and quality to the client with an emphasis on efficiency, operability and aesthetics.

### **Sara Rogers, PE, QSD (Domenichelli and Associates)**

#### *Education*

- B.S., BioResources and Agricultural Engineering, California Polytechnic State University, SLO CA - 2000
- M.S. Water Engineering, California Polytechnic State University, SLO CA - 2001

#### *Registrations*

- Professional Engineer, Civil, 2003 CA #64226
- CASQA Certified QSD/P Certification #00418

*Home Office Location:* Sacramento, CA

Sara Rogers has over 18-years of experience, sixteen of which are with D&A where she serves as Vice President. She is a registered engineer with a MS degree with an emphasis on water resources design. Ms. Rogers has extensive experience working with multiple agencies on water line replacement projects. Her experience working on similar projects from design through construction is valuable. She has extensive experience working on SRF and grant funded projects including incorporating provisions into design documents and reporting.

- SCWA – Arden Service Area Distribution Pipe Replacement and Meter Installation Project. D&A's Project Manager on this multi-year, multi-million-dollar project that will replace approximately 38 miles of new distribution pipe and install approximately 3,000 meters. She works closely with SCWA Program Manager to address SCWA needs, SacDOT requirements, and manage the development of plans and specifications.
- Project Manager and Construction Manager for SSWD, Water Main Replacement and Meter Retrofit Projects, Multiple Projects. Served as project engineer and provided construction management services on multiple water main replacement projects comprised of over 150,000-feet of 12-, 8-, 6-inch mainlines. Work included the installation of and replacement of thousands of water meters. On several projects, inspection services were required at night on major streets (e.g. Watt Ave, Arden Blvd, and Fulton Ave).

Rio Linda Well 15 Pipeline and Pump Station Project, Rio Linda, California. Project Engineer and Construction Manager of a 2,800gpm well, pump station and pipeline in Rio Linda. The project was funded through the State Revolving Fund (SRF). Mrs. Rogers assisted with grant/loan documentation required during design and construction.

**\*\* End of Staffing \*\***

## Proposed Costs (Item 6.3 of RFP)

### Fee Estimate

The total estimated fee to complete the Services and Scope is \$47,000. A breakdown of the fee estimate by task is as follows:

#### Task 1: Water Demand Analysis

Item	Cost (\$)	Markup	Fee (\$)
Affinity	3,000	--	3,000
Domenichelli	2,000	5%	2,100
Reimbursables*	200	15%	230
<b>Task Subtotal</b>			<b>5,330</b>

\* Reimbursable cost includes \$200 for mileage.

#### Task 2: Transmission Main Alignment

Item	Cost (\$)	Markup	Fee (\$)
Affinity	2,000	--	2,000
Domenichelli	2,000	5%	2,100
Reimbursables	0	15%	0
<b>Task Subtotal</b>			<b>4,100</b>

#### Task 3: Water Supply

Item	Cost (\$)	Markup	Fee (\$)
Affinity	5,000	--	5,000
Domenichelli	1,000	5%	1,050
Reimbursables	0	15%	0
<b>Task Subtotal</b>			<b>6,150</b>

#### Task 4: Well and Reservoir Facility (Facility) Siting

Item	Cost (\$)	Markup	Fee (\$)
Affinity	5,000	--	5,000
Domenichelli	1,000	5%	1,050
Reimbursables*	4,200	15%	4,830
<b>Task Subtotal</b>			<b>10,880</b>

\* Reimbursable cost includes \$200 for mileage and \$4,000 for hydrogeological services.

**Task 5: Water Modeling**

Item	Cost (\$)	Markup	Fee (\$)
Affinity	1,500	--	1,500
Domenichelli	10,000	5%	10,500
Reimbursables	0	15%	0
<b>Task Subtotal</b>			<b>12,000</b>

**Task 6: Study Summary TM**

Item	Cost (\$)	Markup	Fee (\$)
Affinity	4,000	--	4,000
Domenichelli	4,000	5%	4,200
Reimbursables	100	15%	115
<b>Task Subtotal</b>			<b>8,315</b>

**Rate Schedules**

All services will be billed per the following rate schedules:

<b>Affinity Engineering 2019 Rate Schedule</b>	
<b>Position</b>	<b>Rate (\$/hr)</b>
Senior Project Engineer	190
Project Manager/Engineer	160
CAD/Asst. Engineer	110
Field Technician	110
Clerical	85
Domenichelli and Associates fees are billed at cost plus 5% (see Domenichelli and Associates 2019 Rate Schedule below)	
Sub-consultant fees excluding Domenichelli and Associates and Reimbursable Expenses are billed at cost plus 15%	
Mileage cost is based on \$0.50/mile	

<b>Domenichelli and Associates</b>	
<b>2019 Rate Schedule</b>	
<b>Position</b>	<b>Rate (\$/hr) *</b>
Project Principal	190
Project Manager	170
Project Manager/Senior Project Engineer	145
Project Engineer II	130
Staff Engineer 1	120
Staff Engineer 2	110
CAD Drafter	100
Reimbursable expenses are billed at cost plus 15%.	

\*\* End of Proposed Costs \*\*