



# OLYMPIC VALLEY PUBLIC SERVICE DISTRICT



EXHIBIT F-9  
10 Pages

## PRESSURE ZONE 1A PROJECT

**DATE:** December 15, 2020

**TO:** District Board Members

**FROM:** Dave Hunt, District Engineer

**SUBJECT:** Pressure Zone 1A Project – Professional Services Agreement with Farr West Engineering for Engineering Planning Services

**BACKGROUND:** The Pressure Zone 1A Project (project) is identified in the Water Capital Improvement Plan as a critical component of District’s water loss reduction and pressure management program. The project will create a new pressure zone to reduce excessively high water pressures in the lower (eastern) portion of the District’s water system. The lower portions of Zone 1 have water pressures exceeding 130-150 pounds per square inch (psi). Water industry standards recommend pressure not exceed 100 psi. It is well documented that high pressures in a water distribution system exacerbate leakage rates in pipes. In many cases leakage rates can increase by more than 5 times the original leak level. Leak rates are exacerbated by pressure fluctuations, pipe material, pipe age, and construction methods. Sections of the lower part of Zone 1 were constructed as far back as the 1960s using asbestos concrete and steel pipe.

The project will entail construction of two or three pressure reducing valve (PRV) stations, appurtenant distribution piping and valves, and electrical and controls. The PRV stations will include pressure and flow monitoring and be integrated into the District’s SCADA system. The project will include planning, permitting, design, and construction phases. Planning will include updating and calibrating the District’s hydraulic water model, determining the quantity and location of PRVs, and site selection. Permitting will include environmental and Placer County encroachment permits.

Planning of the project is included in the FY21 budget, and design and permitting in the FY22 budget. Construction of the project could occur as early as FY23.

**DISCUSSION:** Farr West Engineering (FWE) provided a scope of work to provide engineering planning services for the project. The scope includes updating and calibrating

the District' water system hydraulic model and preparation of a Basis of Design Report (BDR).

The hydraulic model calibration task will use recent fire hydrant testing data and current water demand information to update and calibrate the model to increase its accuracy. The model will be used to define the new pressure zone boundary and identify potential locations for PRVs and additional piping.

The BDR will provide the basis of design for the project and include:

- Hydraulic modeling to determine PRV locations and additional distribution system piping requirements;
- Design criteria;
- Site evaluation for PRVs and identification of easement requirements;
- Permitting requirements;
- Planning level design drawings; and
- Planning level cost estimate.

Design and permitting of the Project will be initiated after completion of the BDR.

The District received a grant from the Placer County Water Agency (PCWA) Financial Assistance Program (FAP) for \$55,000 in May 2020 to support planning and design. The developer of the Palisades at Squaw project also contributed \$50,000 towards the overall project as required in the 2017 Development Agreement. After completion of the BDR, staff will pursue additional funding opportunities for construction of the project, including the Bureau of Reclamation WaterSMART grant program and the PCWA FAP. Matching funds will come from the District's Water Capital account. The current total estimated project cost is approximately \$990,000.

**ALTERNATIVES:** 1. Approval of the proposal from Farr West Engineering to provide engineering planning services for the project in an amount not to exceed \$42,540.00.

2. Do not approve the proposal.

**FISCAL/RESOURCE IMPACTS:** The source of funds for engineering planning services is provided by the PCWA FAP grant. Future phases of the project, including Design and Permitting, and Construction will be funded by the PCWA FAP Grant, the contribution from the Palisades at Squaw developer, and the Water Capital account.

**RECOMMENDATION:** Staff recommends approval of the proposal from Farr West Engineering for providing engineering planning services and recommends the General Manager be authorized to execute a Professional Services Agreement with Farr West Engineering in an amount not to exceed \$42,540.00.

**ATTACHMENTS:** Farr West Engineering proposal dated December 10, 2020

**DATE PREPARED:** December 10, 2020

**EXHIBIT A**  
**SCOPE OF WORK**

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**Olympic Valley Public Service District**  
**Pressure Zone 1A Improvement Project**

**INTRODUCTION**

Olympic Valley Public Service District (OVPSD) has requested Farr West Engineering (Farr West) to provide a scope of work (SOW) for the water system Pressure Zone 1A Improvement Project. The water system currently has a pressure zone on the eastern limits of the system that experiences high pressures. OVPSD wishes to create a new pressure zone for this area to reduce system pressures. This project will consist of updating the existing hydraulic model of the water system and utilizing the updated model to create a Basis of Design Report (BDR) for a future design of the new pressure zone.

The phase and task breakdown for the project is designated as follows:

**Design Services**

- Task 1 – Project Management
- Task 2 – Water Model Update
- Task 3 – Basis of Design Report

**DESIGN SERVICES**

**Task 1 – Project Management**

*Objective*

To plan, organize, direct, control, and communicate all relevant activities set forth in this Scope of Work within the approved budget and schedule.

*Approach*

Farr West will routinely review project progress and communicate project status on a regular basis. Communication will be through email and telephone, and at project coordination meetings with OVPSD and Farr West staff. This task will include the following activities:

- Project administration includes scheduling maintenance, cost control, monthly invoicing, filing, resource allocation, subconsultant management, and routine communications.
- Conducting a project kick-off meeting with Farr West and OVPSD staff.
- Team coordination, including conference calls and internal meetings.
- Monitoring changes to the scope, budget, or schedule and developing change management strategies with OVPSD.

### ***Deliverables***

The following deliverables will be submitted under this task:

- Project schedule.
- Monthly status reports.

### ***Assumptions***

The following assumptions apply:

- Monthly reports (4) will be provided with timely invoices.
- Project-related issues will be identified, communicated, and resolved.

## **Task 2 – Water Model Update**

### ***Objective***

To update the hydraulic model by updating model demands and calibrating the model using field hydrant test data.

### ***Approach***

The following approach applies:

- Review the existing model average day, maximum day, and peak hour demands within the model.
- Review previous demand allocations and update system demands per updated demand calculations.
- Create extended period simulation (EPS) scenarios for average day and maximum day demands using diurnal curves created by OVPSD.
- Using the previously recorded hydrant test data, calibrate the model to the field data.
- Verify calibrated model by running known operational scenarios, including operations of water system with major components offline during maintenance periods.

### ***Deliverables***

The following will be delivered under this task:

- Technical memorandum summarizing the model update and calibration effort.
- Hydraulic model digital file

### ***Assumptions***

The following assumptions apply:

- OVPSD will provide updated average day, maximum day, and peak hour demands for the system.
- This SOW assumes that the customer meter GIS database has not been updated and allocation of demands on a meter-to-meter basis will not be updated from previous iterations of the model. Global demand totals by pressure zone and specific development areas will be updated per data provided by OVPSD.

- The calibration effort will use hydrant testing data that has previously been collected by OVPSD. If hydrant testing data is not useful, Farr West will request additional hydrant testing to be performed to better calibrate the model. Any additional hydrant testing will be performed by OVPSD staff.
- OVPSD will provide system diurnal curves for average day demand and maximum day demand.
- Two (2) progress meetings will be a part of this task to review model update and calibration efforts, as well as discuss further hydrant testing needs if required.

### **Task 3 – Basis of Design Report**

#### ***Objective***

To use the calibrated water model to model specific project alternatives in order to determine optimal locations to establish a new pressure zone. Complete a project alternatives analysis and select a preferred project. A complete BDR will be prepared to document findings from the modeling efforts, as well as provide a 10%-30% design of the planned selected project.

#### ***Approach***

This task will include the following activities:

- Determine all possible locations in the existing system where establishing the new pressure zone is possible.
- Model the possible locations and configurations to determine the most efficient locations hydraulically. Including PRV sizing and setting, and any additional piping requirements as needed.
- Perform an alternatives analysis using engineering, construction, easement requirements, power availability and proximity, and SCADA needs as factors in the selection process.
- Planning level cost estimates for project alternatives will be created and used as part of the site selection and evaluation process.
- Prepare a BDR that summarizes the approach to the zone 1A improvements including the modeling effort, alternatives analysis, project selection, planning level cost estimate of preferred project, permitting requirements, and design criteria.

#### ***Deliverables***

The following deliverables will be submitted under this task:

- Draft BDR
- Final BDR

#### ***Assumptions***

The following assumptions apply:

- Four (4) progress meetings will be a part of this task to review the project progress and status of the BDR.
- One (1) meeting will be held at Farr West's office with OVPSD staff to review the draft BDR.
- The draft BDR will be revised per comments received from OVPSD and a final BDR will be issued.

**EXHIBIT B  
SCHEDULE**

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**Notice to Proceed:** **December 2020**

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**Water Model Update and Calibration:** **January 2021**

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**Draft Basis of Design Meeting:** **February 2021**

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**Final Basis of Design Report:** **March 2021**

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**EXHIBIT C  
BUDGET**

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Task 1	Project Management	\$5,250
Task 2	Water Model Update	\$14,800
Task 3	Basis of Design Report	\$22,500
	<b>TOTAL:</b>	<b>\$42,550</b>



**EXHIBIT D  
ENGINEER'S RATE SCHEDULE**

<b>Title</b>	<b>Hourly Rate</b>	<b>Title</b>	<b>Hourly Rate</b>
Principal Engineer	\$172	Building Inspector II	\$70
Senior Engineer II	\$165	Building Inspector I	\$65
Senior Engineer	\$150	Designer III	\$120
Engineer IV	\$140	Designer II	\$110
Engineer III	\$130	Designer I	\$100
Engineer II	\$120	GIS Analyst II	\$140
Engineer I	\$110	GIS Analyst I	\$120
Electrical Engineer in Training II	\$110	GIS Specialist	\$100
Engineer in Training II	\$100	GIS Technician	\$87
Engineer in Training I	\$93	Water Rights Specialist III	\$150
Senior Hydrogeologist	\$160	Water Rights Specialist II	\$130
Hydrogeologist II	\$115	Water Rights Specialist I	\$110
Hydrogeologist I	\$100	Water Rights Technician III	\$105
Electrical Engineer	\$150	Water Rights Technician II	\$95
Construction Inspector III	\$115	Water Rights Technician I	\$75
Construction Inspector II	\$110	Regulatory & Env. Specialist	\$100
Construction Inspector I	\$95	Professional Surveyor	\$140
Project Assistant	\$93	Survey Technician III	\$115
Admin IV	\$100	Survey Technician II	\$100
Admin III	\$90	Survey Technician I	\$80
Admin II	\$80	1 Man Survey Crew	\$140
Admin I	\$65	2 Man Survey Crew	\$220
Intern	\$45	Utility Operator	\$120

Other Fees and Charges:

1. All direct project expenses, including subconsultants, will be billed at actual cost plus 15%.
2. An overtime surcharge of 25% will be applied to the hourly rates of non-salaried employees for authorized overtime work.
3. Different survey and construction inspection labor rates will apply on prevailing wage projects. Rates for prevailing wage projects will be provided on a case by case basis.

**Squaw Valley PSD  
Pressure Zone 1A Improvement Project - Planning  
Engineering Fee Estimate**

	Principal Civil Engineer - Matt Van Dyne	Principal Civil Engineer - Lucas Tipton	Engineer III - Alex Stodtmeister	EIT II - Tanner Brashler	Administrator II - Deidre Blanton	Total Labor		Sierra Controls	TOTAL	
TASKS	Rate (\$/hr)	\$172	\$172	\$130	\$100	\$80	Hours	(\$)	(\$)	(\$)
<b>1.0 Project Management</b>										
Project Coordination and Management	8	8	4				20	\$3,272		\$3,272
Monthly Reports/Progress Billings	4				4		8	\$1,008		\$1,008
Project Kickoff Meeting	2	2	2				6	\$948		\$948
<b>Subtotal</b>	<b>14</b>	<b>10</b>	<b>6</b>		<b>4</b>		<b>34</b>	<b>\$5,228</b>		<b>\$5,228</b>
<b>2.0 Water Model Update</b>										
Progress Meetings		2	2				4	\$604		\$604
Demand Allocation	1	2	8	8			19	\$2,356		\$2,356
Hydrant Testing Coordination			4	4			8	\$920		\$920
Model Calibration	1	2	16	16			35	\$4,196		\$4,196
EPS Scenarios		2	8	16			26	\$2,984		\$2,984
Summary Memorandum		2	20	8			30	\$3,744		\$3,744
<b>Subtotal</b>	<b>2</b>	<b>10</b>	<b>58</b>	<b>52</b>			<b>122</b>	<b>\$14,804</b>		<b>\$14,804</b>
<b>3.0 Basis of Design Report</b>										
Progress Meetings	4	4	4				12	\$1,896		\$1,896
Alternatives Modeling	2	10	20	18			50	\$6,464		\$6,464
Alternatives Analysis	4	4	12				20	\$2,936		\$2,936
Draft BDR	4	4	24	16			48	\$6,096		\$6,096
BDR Review Meeting w/ SVPSD	2	2	4				8	\$1,208		\$1,208
Final BDR	2	2	14	14			32	\$3,908		\$3,908
<b>Subtotal</b>	<b>18</b>	<b>26</b>	<b>78</b>	<b>48</b>			<b>170</b>	<b>\$22,508</b>		<b>\$22,508</b>
<b>TOTAL</b>	<b>34</b>	<b>46</b>	<b>142</b>	<b>100</b>	<b>4</b>		<b>326</b>	<b>\$42,540</b>		<b>\$42,540</b>