DEPARTMENT OF
ECOLOGY
State of Washington

DROUGHT RELIEF GRANT APPLICATION

Ecology Use Only

Application Number						
D2015	3	3	-	5	W	

Date 9/15/2015

The information provided in this application will be used to determine general eligibility for funding from the Drought Relief Program, and the priority or ranking of the proposal amongst other competing proposals.

Separate application must be made for any needed emergency drought authorization. Before final approval of grant funding, the applicant must submit copies of all required permits and other authorizations needed for the proposal to Ecology for our review.

1. **Applicant Name(Public Body):** PUD #1 of Clallam County			
Address: PO Box 1090	City: Port Angeles	State: WA	Zip: 98362
(a) Authority (State Law): Public Utility District - RCW 54.08			
(b) Date Organized: November 1940			

2. **Contact Person:** Tom Martin		Title: Water/Wastewater Asst Sup't	
Address: PO Box 1090	City: Port Angeles	State: WA	Zip: 98362
Email: tomm@clallampud.net	Phone #: 360-565-3449		

3. PROJECT(S) DESCRIPTION

Provide a description of the proposed project(s) and a detailed scope of work. Attach additional sheet(s) if necessary. Attach a map (U.S.G.S. Quad or comparable) showing the geographic location of the proposed project(s).

This project provided potable water supplies to 566 customers in the upper Fairview Water System operated by Public Utility District No.1 of Clallam County (The District). The primary source of water supply for the Upper Fairview water system is Morse Creek Water Treatment Plant. This source becomes 100 percent unavailable when the flows in Morse Creek drop below 25 CFS. At this flow level, the District is required to cease diversions from Morse Creek per the water right for this source. Morse Creek flow dropped below 25 cfs on about July 16, 2015. On July 2, 2015, the Washington Department of Fish and Wildlife (DFW) recommended to the Washington Department of Ecology (Ecology) that the District cease all Morse Creek diversions and build and operate a backup water supply system by August 1, 2015.

Without the Morse Creek source, the District had to rely on the two newly constructed well sites in the lower system. Construction was completed in July 2015. The combined production capacity of these wells is 850 gpm, which exceeds the combined water demands of the lower and upper systems. The wells sites are designed to pump groundwater up to the Deer Park Reservoir, which serves the lower system. To serve to the upper system, the District constructed a booster pump system to convey water from Deer Park Reservoir (560 feet elevation) to Township Line Road Reservoir (1150 feet elevation), which serves the upper system. This grant application is for the planning, design and construction of the booster pump system.

The booster pump system was installed in the existing distribution system. One challenge of this system is that

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the existing 6-, 8- and 10-inch asbestos-cement (AC) pipe that connects the Township Line Road Reservoir to Deer Park Road Reservoir was originally designed to only convey water downhill. During normal operations, three pressure regulating stations reduce pressure as water flows downhill. In order to pump water back up the hill, these pressure reducing stations needed to be bypassed. A booster pump was installed next to Deer Park Reservoir, and bypass piping and booster pumps were installed at the middle and upper pressure regulating stations (see attached map). Each pump conveys water up to the next higher pressure zone. This design maintains about the same pressure in each pressure zone and avoids over-pressurization.

Construction of each booster pump station includes a concrete pump-mounting pad, a new 3-phase electric service, variable-frequency-drive, pump and fencing. The District used existing spare pumps from their Clallam Bay Water System for this project. (The District needs to purchase new pumps for this project and return these pumps for their original use.) The first booster pump was installed at the Deer Park Road Reservoir (elevation 530 feet). From this first booster pump, approximately 600 feet of 4-inch HDPE pipe was installed to run up to the existing water main. This pipe crosses under Deer Park Road at the reservoir. It parallels the existing main to a point just uphill of the lower pressure reducing station located at 1880 Deer Park Rd (540 ft elevation). The existing main was tapped at this point where the new HDPE pipe was tied-in. The middle pump station is located at 3400 Deer Park Rd (750 feet elevation). The upper pump station is located at 4280 Deer Park Rd (940 feet elevation). The existing main was tapped on both the high and low side of these pressure regulating stations. Four-inch HDPE bypass piping was installed from the taps to the booster pumps. The length of bypass pipe was about 100 feet at the middle and upper booster stations. Pressure gauges were installed near each tap. A flow meter and ball valve was installed on the discharge side of the upper booster pump station.

Due to the deadline imposed by WDFW to complete this project, the booster pump system was rapidly designed and constructed. The engineering design and reports tasks were carried out concurrently with the project plans and specifications and construction tasks. The project was completed on August 1, 2015.

4. DESCRIPTION OF NEED

Describe what would occur without the benefit of the proposed project(s), including: the nature of the actual hardship, both short-term and long-term impacts, the expected loss of normal water supply by percentage, and the estimated potential financial losses. Explain why these circumstances constitute a water supply emergency resulting from natural-caused drought conditions, rather than a pre-existing condition during a normal water year.

This project is needed to resolve an emergency drought water supply issue that affects 566 customers in the upper Fairview Water System. The lack of snowpack in the Olympic Mountains resulted in the Governor declaring drought emergency for Clallam County in March 2015. The dry spring created a more severe drought condition. There was no pre-existing condition during a normal water year that would have caused the District to construct the temporary booster pumping system. This backup water supply system is needed when below-normal precipitation causes Morse Creek streamflow to drop below 25 cfs.

The primary source of water supply for the upper Fairview water system is Morse Creek Water Treatment Plant. This source becomes 100 percent unavailable when the flows in Morse Creek drop below 25 CFS. At this flow level, the District is required to cease diversions from Morse Creek per the water right for this source. Due to this limitation, the Department of Health (Health) entered into a Bilateral Compliance Agreement (BCA) with the District to provide backup water supply for the upper system. Until recently, the treatment plant was the primary source for the upper and lower system. As part of the plan to meet the terms of the BCA, the District constructed two new wells in the lower system. These wells replaced the treatment plant as the primary source of water supply for the lower system. This reduced the need to divert water from Morse Creek by 70 percent; however, the Department of Ecology has not allowed diversion of the remaining 30 percent during low-flow

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conditions caused by the 2015 drought.

Without the benefit of this project, the drought would cause hardship due to the elimination of access to potable water for indoor and outdoor use by 566 customers. In June 2015, the Ecology required the District to issue a Stage 4 drought response notice, which is a mandatory outdoor water restriction. DFW recommended to Ecology that permission to divert water from the source of water be denied starting August 1, 2015. Without the Morse Creek source of water supply, the District had to rely on their only other source in the upper water system: the two unreliable Township Line Road wells. Past use of these wells resulted in the well production dropping from 30 gpm to about 10 gpm in a matter of days. The average demand is about 120 gpm.

Without a reliable source, Health suggested that water filling stations be installed in the lower system, or trucking water from the lower to upper water systems. In either case, the District would have had to issue a boil water notice; however, the more significant impact was the severe reduction of water supplies for fire flow.

Trucking water or installing water filling stations would be a short-term solution only. It would provide water for only the indoor demands. Outdoor water use would continue to be restricted. At least 3 water trucks would be in operation continuously. The estimated cost of this operation exceeded $300,000. With these alternatives, the District would have to consider water rationing, which is the Stage 5 drought response.

The short-term impacts of going to Stage 5 include loss of customer property in the form of expensive landscaping plants, gardens and fruit trees. Also, potential financial impacts included construction delays, increased expenses due to trucking water and boiling water, the increased risk of fire damage due to fire flow shortages. The District would have experienced financial losses approaching $500,000 this summer alone when the expenses for rental of water trucks is combined with lost revenue due to Stage 5 water restrictions and overtime paid to employees to operate the water trucks.

The long-term impacts include decreased property values for customers in the upper Fairview area due to the uncertainty of year round water availability. Public comment regarding the Stage 4 Drought Response notice included demands to place building moratorium in upper Fairview area. Several residents in the area threatened filing a law suit against the District. There was a high likelihood of the District incurring large court and attorney expenses if the drought response would not be lowered to Stage 3.

5. EXPECTED OUTCOME(S)

Describe how the projects would reduce or avoid harm or hardships and any measures planned to assure the capability and reliability of the proposed project(s) to provide an emergency water supply to the applicant.

This project reduced or avoided harm by providing safe, reliable water supply to the upper Fairview Water System during the drought emergency. Avoiding trucking of water or installation of water filling stations reduced the risk of bacterial contamination of drinking water supplies and the risk associated with insufficient fire flows. Harm was avoided by allowing outdoor watering of landscape plants and gardens, and the avoidance of building moratoriums and subsequent litigation. If water was rationed, 566 customers would experience the hardship of having to travel to water filling stations and be provided with minimal water supplies.

The severity of the drought forced the District to rapidly implement the safest, lowest-cost and most reliable short- and long-term solution. This solution relied on the two newly constructed well sites in the lower system. Construction was completed in July 2015. The combined production capacity of these wells is 850 gpm, which exceeds the combined water demands of the lower and upper systems. The wells sites are designed to pump groundwater up to the Deer Park Reservoir, which serves the lower system.

To serve to the upper system, the District needed to pump water from Deer Park Reservoir (560 feet elevation) to Township Line Road Reservoir (1150 feet elevation). Up until August 2015, water from the wells could only be pumped up as far uphill as the Deer Park Reservoir. To continue pumping well water uphill to the Township

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Line Road Reservoir, the District installed a series of three booster pumps between the two reservoirs. This new pumping system provided redundancy in the water supply for both Upper and Lower Fairview customers. The 566 customers in the upper system no longer depend on Morse Creek for water supply during low-flow periods.

Also, this project reduced harm to fish in Morse Creek. Both resident and endangered anadromous fish species are present in the creek. The District will not reduce creek streamflow during a drought because of the project.

6. WATER SHORTAGE RESPONSE ACTIONS ALREADY TAKEN

Describe the measures taken by the applicant to plan for or mitigate the effects of drought (e.g., conservation, irrigation efficiency measures, leakage, elimination of non-essential uses).

Per the 2009 BCA with Health, the District had already been implementing a plan to provide a backup water supply for the upper Fairview Water System. By July 2015, construction had just been completed on two new well sites. The new well construction was the first phase of the compliance plan by substituting a surface water source with a more drought-resilient groundwater source. The wells would supply the lower system, thus reducing the demand on the Morse Creek source by 70 percent. The plan called for the continued reliance on the creek to supply the upper system; however, the wells would provide flow augmentation to mitigate streamflow impact on the creek during droughts.

The District augmented flow in Morse Creek on July 2, 2015, 14 days before the streamflow dropped below 25 cfs on July 16, 2015. The completion of new well site construction provided the capacity for the flow augmentation. The augmentation of creek flow by 200 gpm (0.45 cfs) was twice as much as the 100 gpm flow diversion to the District's Morse Creek Water Treatment Plant. While this augmentation point is downstream of our Morse Creek Treatment Plant diversion, it still provided a net 100 gpm gain in creek streamflow that improved salmon habitat.

DFW and Ecology did not approve the long-term implementation of this plan. They allowed the District was allowed to divert water to the treatment plant while augmenting flow until August 1, 2015. This gave the District about 4 weeks to complete testing of the new well sites, and design, permit, construct, test and startup the temporary, emergency booster pumping system.

For emergency backup, the District operates two wells located at the Township Line Rd Reservoir, which serves the upper system. These wells produce approximately 30 GPM upon initial startup, but production steadily decreases down to around 10 GPM after running for more than a few days. Earlier in the drought, the District used these wells after issuing a Stage 4 drought response in the Upper Fairview Water System. The Township Line wells are not a sufficient long-term backup source. The well use was discontinued upon startup of the booster pump system. Ecology's short-term drought permit for these wells does not allow them to operate when the booster pumping system operates.

Per Ecology direction, the District issued a Stage 4 drought response notice in June 2015. This notice requires mandatory restrictions on all outdoor water use. In addition to the Stage 4 water conservation effort, the District managed demand using several methods. The District has a conservation rate structure, which is a disincentive for high outdoor water use. Also, repairs of leaks in the upper Fairview System took precedence over other service work by District water crews. The District contacts our customers that have high water use. If our billing department notices usage that is uncharacteristically high, the District will contact the customer by phone to

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notify them of this increased use. Numerous customer leaks have been identified and repaired as a result of this practice. Finally, the District provided public outreach and education about water conservation during the drought through our website, and newspaper, radio and on-line social media.

7. WATER RIGHTS

(a) Describe whether you have or will be submitting an application for an emergency drought authorization and or have other pending water right applications

An emergency drought water right application has been submitted and approved by Ecology. This emergency water right will allow the District to utilize their Township Line Road wells once Morse Creek reaches 25 CFS.

No new water right application is required for the project.

(b) List the applicant's legal water rights to divert or withdraw water for use on land within the applicant's legal boundaries, and attach copies.

Morse Creek - S 2-00076 C

Bluffs Wells - CG2-GWP7439

Township Line Wells - G2-30668 (For emergency drought use only)

8. INTERGOVERNMENTAL COORDINATION

Provide a summary of how the applicant has and/or will consult with affected agencies and/or Indian Tribes prior to and during implementation of the proposed project(s). Include a list of the affected agencies and Indian Tribes and a summary of impacts/approvals if known. (Attach an additional sheet if necessary.)

The District has consulted with Health, Ecology, DFW, the Washington Department of Commerce, the City of Port Angeles and the Lower Elwha Tribe regarding this matter. Initial discussions involved gaining approval of the plan to augment the flow in Morse Creek and to use an emergency water right on Morse Creek owned by the City of Port Angeles. Ecology denied the use of the emergency water right. The Lower Elwha Tribe Ecology approved the flow augmentation plan, but Ecology and DFW determined that the plan was to be a short-term solution. They deemed necessary the implementation of the plan to pump water from the lower to the upper Fairview Water System. The District submitted a project report for this plan to Health. Health approved the plan on July 31, 2015. The project was completed and water was pumped up to the Township Line Reservoir on August 1, 2015.

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9. PROJECT(S) SCHEDULE/DURATION

(a) When do you expect to have all the required permitting, approvals, and funding?

The District has secured all necessary permitting and approvals and will self fund the project for the time being until grant applications have had time to be processed.

(b) Approximately how long will the proposed project(s) take to complete?

26 days

(c) Expected project(s) schedule, including start date, completion date, and significant intermediary steps:

Start date - July 6th, 2015

Expected completing date - August 1, 2015

Significant intermediary steps -

10. PROJECT COMPONENTS

Check appropriate box or boxes and complete estimated cost for proposed activities under this grant.

(a)	☒ Engineering design and report	$ 20,000
(b)	☐ Project(s) plans and specifications	$ _____
(c)	☐ Purchase of land, rights-of-way, easements	$ _____
(d)	☒ Construction	$ 237,190
(e)	☐ Construction engineering	$ _____
(f)	☒ Education and outreach	$ 1,000
(g)	Other _____	$ _____

11. FUND SOURCES	Estimated total project cost		Estimated eligible project cost	
(a) Total estimated project(s) cost	100 %	$ 258,190	100 %	$ 258,190
(b) Total estimated eligible project(s) cost	100 %	$ 258,190	100 %	$ 258,190
(c) Ecology grant share	100 %	$ 258,190	100 %	$ 258,190
(d) Match fund source(s): (specify)	%	$	%	$
(e)	%	$	%	$
(f)	%	$	%	$
(g)	%	$	%	$

☒ Applicant may be exempt under WAC 173-167-040(3) from the fund match requirement

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12. CERTIFICATION

I certify to the best of my knowledge that the information in this application is true, complete, and correct and that I am legally authorized to sign and submit this information on behalf of the applicant.

Doug Nass	
PRINT NAME	SIGNATURE
General Manager	September 11, 2015
TITLE	DATE

13. Send original, including attached sheets, maps, copies of water rights, and other supporting documents, to:

Department of Ecology
Water Resources Program
PO Box 47600
Olympia, WA 98504-7600
ATTN: Rebecca Inman

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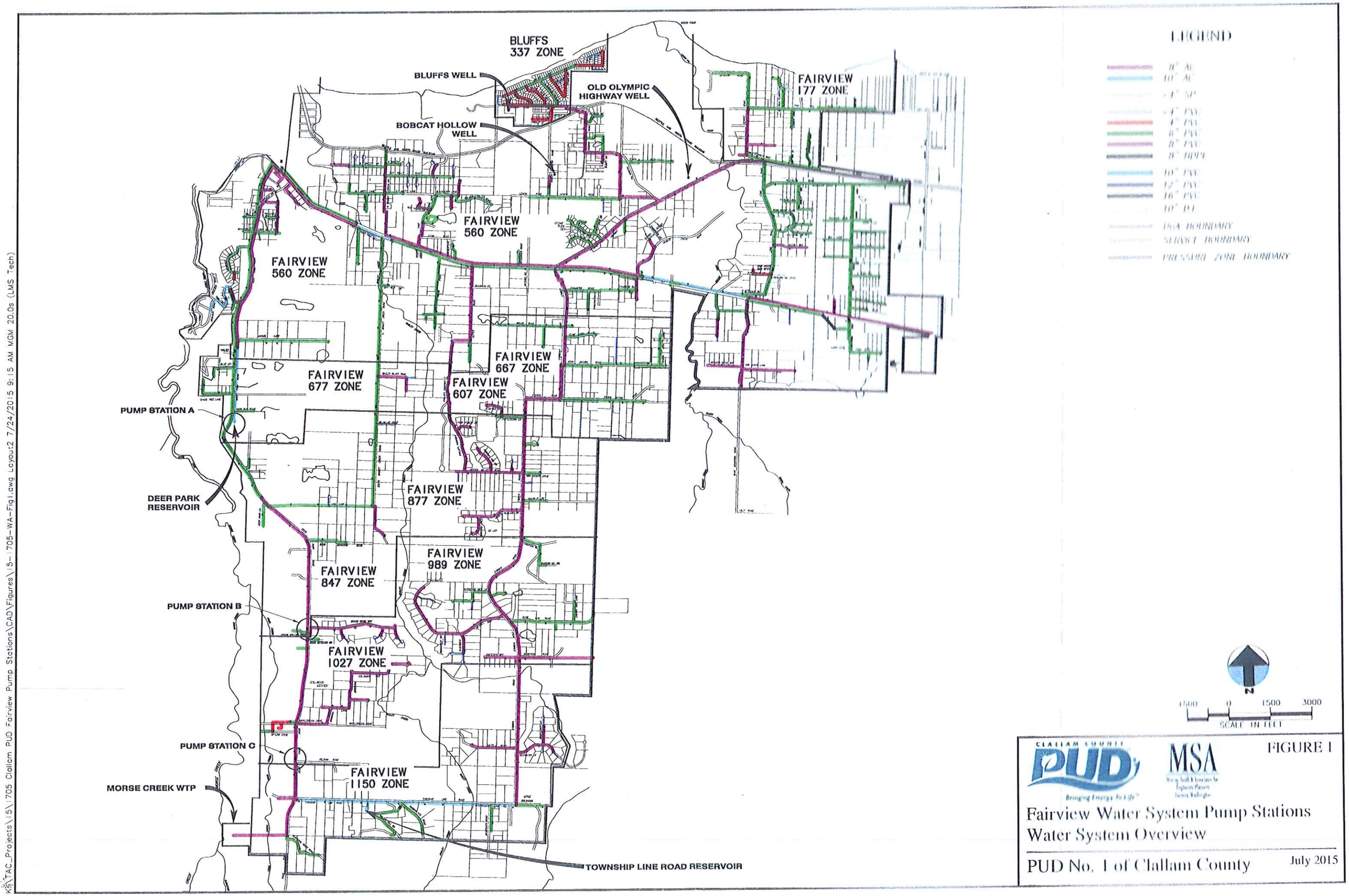

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