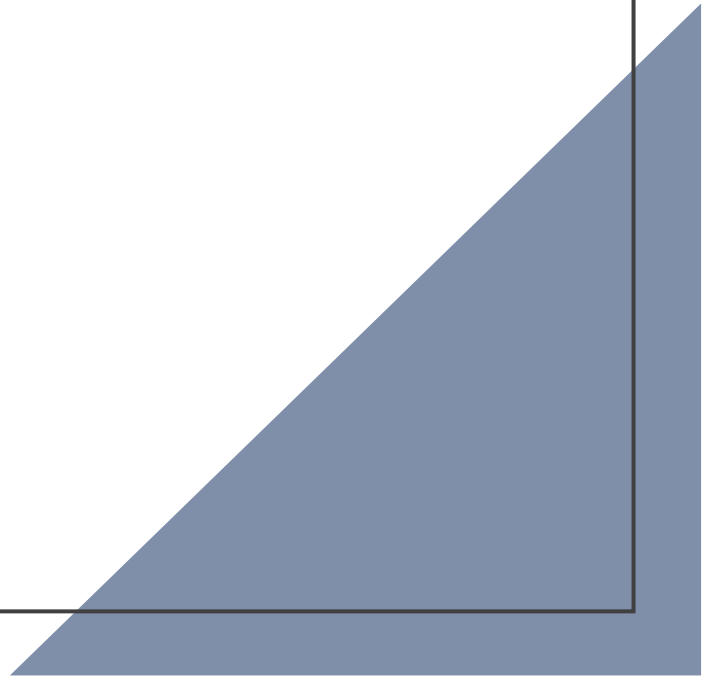


Tanglewilde-Thompson Place 600 Water System Capital Replacement and Improvements

- Water Main Replacements
- PFAS Treatment Project
- Chlorine Generation System



Overview

Planned Capital investment in the Tanglewilde-Thompson Place water system is estimated to amount to approximately \$33,000,000 over the next 15 years. This includes an estimated:

- \$28,300,000 for water main replacement
- \$3,531,219 for PFAS treatment
- \$80,000 for onsite chlorine generation
- \$1,000,000 in other minor capital replacement projects

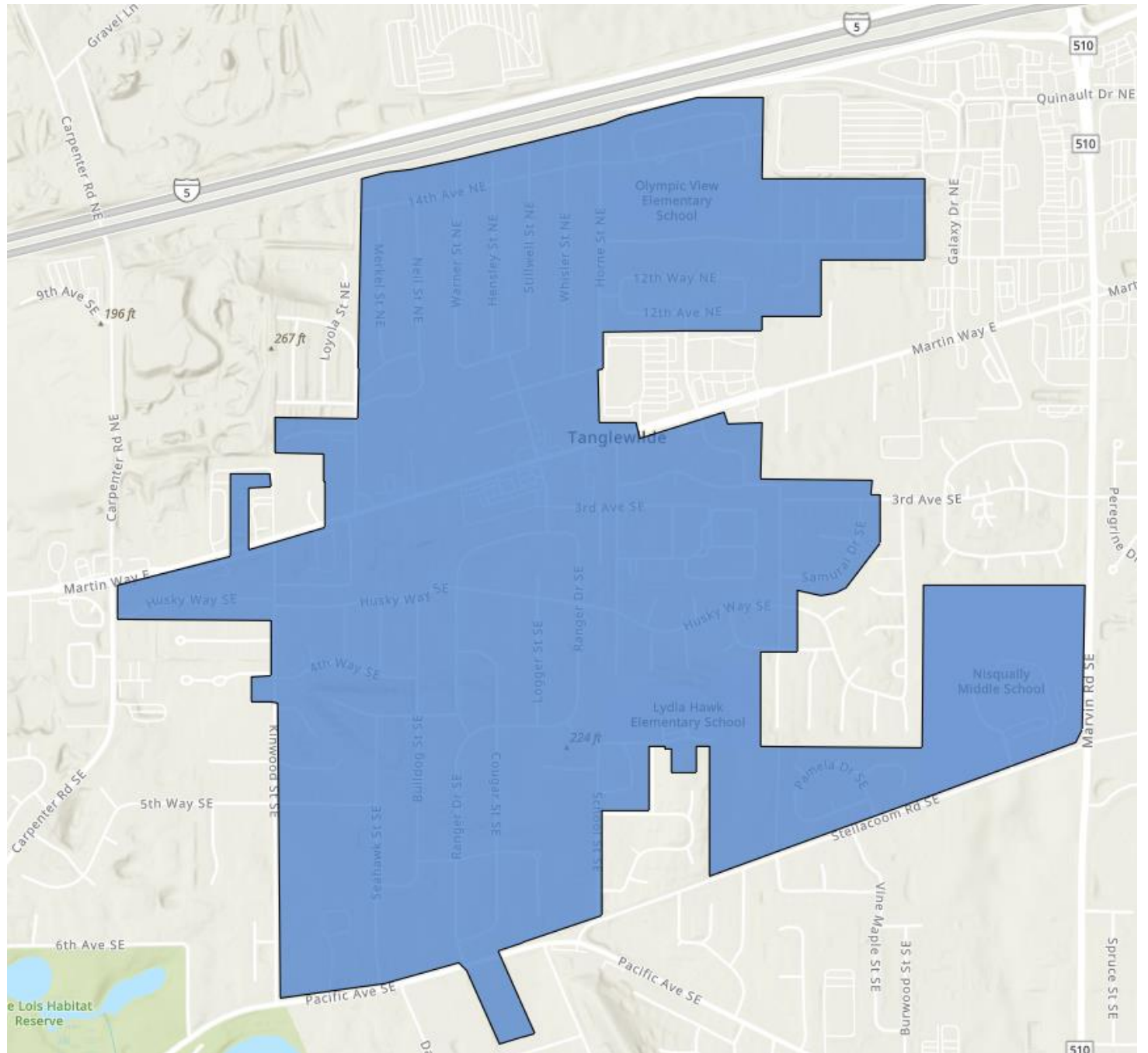
Water Main Replacement

- The Tanglewilde-Thompson Place water system was primarily constructed in the 1950's and 1960's
- The system now provides water and fire flow service to approximately 2,000 homes and businesses
- Most of the existing water mains are aging and in need of replacement
- Approximately 80,000 lineal feet of mains are planned for replacement over next 15 years (funding dependent)
- Thurston PUD obtained a State Public Works \$10,000,000 loan at 1.72 percent to fund initial replacement activities. This funding will be used to replace approximately 30,000 lineal feet of mains over the next five years
- Thurston PUD intends to require the contractor to provide a cost/option to replace your own private water line (from the water meter to your home) at your cost if you so choose

Tanglewilde-
Thompson Place
600 Water System
Service Area

Construction Phases:

- Phase 1: \$10,000,000
 - 2025 – 2029
- Phase 2: \$10,000,000
 - 2030 – 2035
- Phase 3: \$10,000,000
 - 2035 – 2040

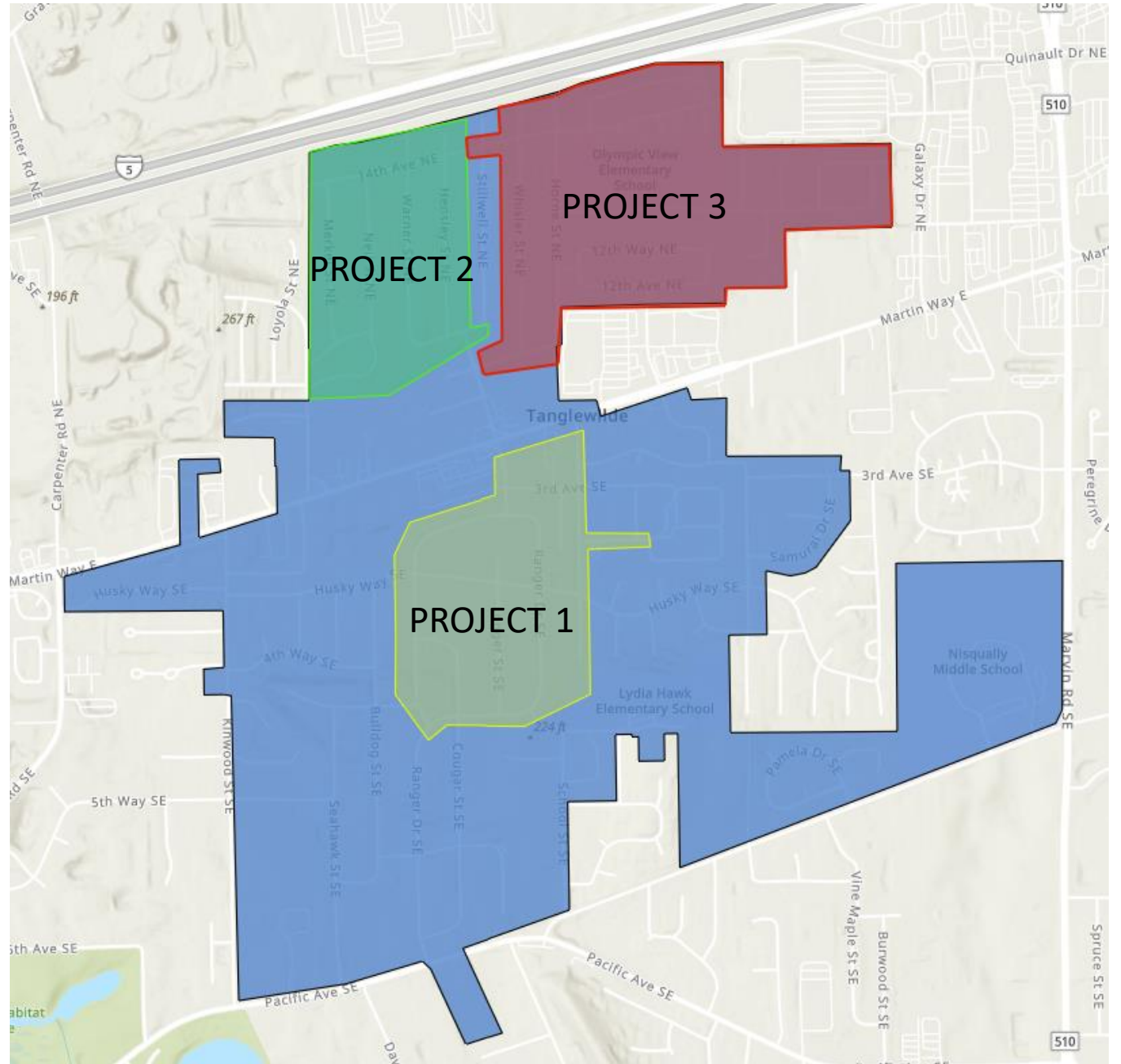


Targeted Replacement Areas

- Thurston PUD is targeting the current funding to replacement in areas that will most benefit the public
- Key areas with insufficient operable valves
- Areas with insufficient fire flow or fire hydrants
- Areas with the most frequent occurrence of main breaks or highest water leakage
- Replacement of mains, valves, hydrants, and services up to meters in most areas
- New mains will be heavy duty water pipe, 6-inch to 10-inch nominal

Projected Targeted Replacement Areas in Phase 1

- **Project 1** estimated construction start date June 2025, estimated completion date January 2026
- Estimated **Project 2** construction start date Spring 2026, end December 2026
- Estimated **Project 3** construction start date Spring 2027, end December 2027



Current Status of Distribution Replacement

- Thurston PUD contracted Project 1 design and engineering services with Northwest Water Systems, Inc.
- Plans and environmental requirements are 95 percent completed
- Current estimated **Project 1** construction start date of **June 2025**, estimated construction completion date of January 2026
- Water service will be maintained throughout project, with periodic limited service interruptions.
- 72 hour advance notice on service interruption, 8 hour limit.
- Partial or full street closures of up to 1 block, however local access to be maintained except for up to 8 hours when excavation is directly in front of private accesses, to be minimized as much as practical.
- Replacement in Wildcat ST SE fronting Tanglewilde Recreation center will not start until after September 8, 2025 to minimize pool access impact.
- Private improvements are prohibited in the right-of-way, however Thurston PUD's contractor will make a reasonable effort to restore to existing condition.

Ongoing Planning of Distribution Projects

- Thurston PUD will update assumptions on future project construction costs as Project 1 proceeds through design, permitting, bidding, and construction
- Possible alteration of Project 3 to reduce scope/cost as necessary, or possible addition of a small project 4 if project is trending under budget
- All Phase 1 construction must be completed by end of loan construction period, ending March 27, 2029
- Future phases are funding dependent; a total of three phases and approximately 10 projects are envisioned to complete water distribution system replacement

Planned Communications During Project

- Thurston PUD will have a timeline for Project 1 once a contractor has been chosen.
- Our website at www.ThurstonPUD.org will have a project update page you will be able to access for up-to-date information.
- Call-Em-All voice messaging services will be used for outages. Please contact Customer Service by phone or email if you need to update your contact information.
 - Phone: 360-357-9783
 - Email: PUDCustomerService@ThurstonPUD.org

Questions

For those attending on a personal device (like a computer, cell phone, or tablet), select the “Raise Hand” feature to indicate you’d like to speak- you will need to unmute yourself once you’re called on

For those attending by phone audio only, press *9 to raise your hand to speak - you will need to unmute yourself by pressing *6 once you’re called on

Please mute all other audio before speaking - using multiple devices can cause audio feedback

What Is PFAS?

- Thurston PUD found Per- and polyfluoroalkyl substances (PFAS) in the Tanglewilde sources of drinking water
- PFAS are a large family of human-made chemicals used to make stain-resistant, water resistant, and nonstick consumer products. They are referred to as “forever chemicals”
 - Examples of products that utilize PFAS are food packaging, outdoor clothing, and nonstick pans
 - A major source of PFAS in our area is from fire fighting foam used by the military, local fire departments, and airports
 - PFAS in drinking water is a nationwide problem
- PFAS contamination is a public health concern for people. Higher exposure to certain PFAS over time can cause health problems

What are the Health Concerns with PFAS?

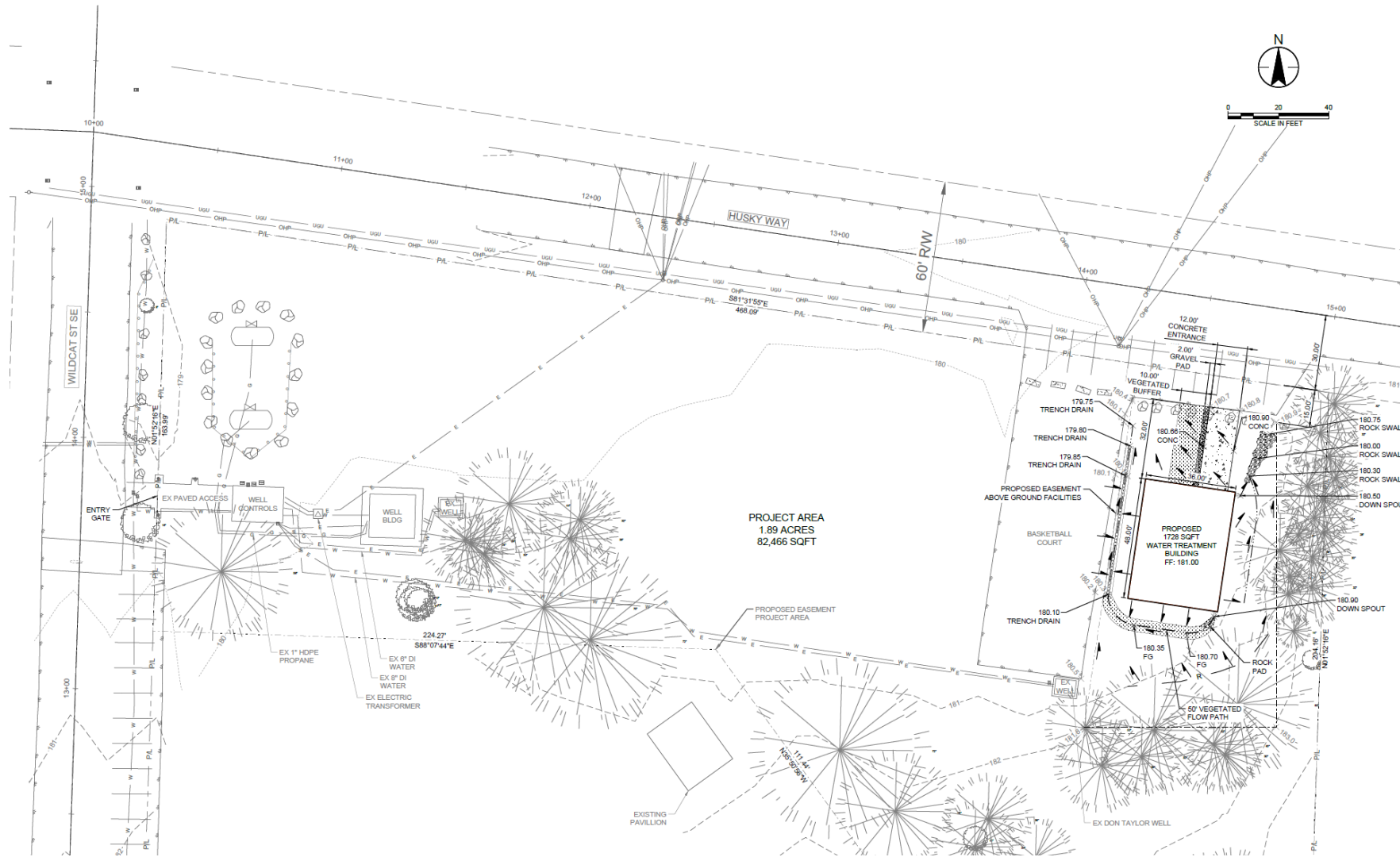
- PFAS in your drinking water is not good
- Exposure to PFAS may lead to:
 - Increased cholesterol levels
 - Decreased birth weights
 - Decreased immune response to vaccines
 - Changes in liver enzymes that indicate liver damage
 - Increased risk of blood pressure problems during pregnancy
 - Increased risk of thyroid disease
 - Increased risk of testicular and kidney cancer
- For more information visit the Washington State Department of Health website: www.doh.wa.gov/community-and-environment/contaminants/pfas
 - This website includes information on individual home filter options

PFAS Treatment Project

- Tanglewilde's levels of PFAS are low compared to contamination in other state and nationwide water systems
 - Tanglewilde PFAS is below the state action level (SAL) but does slightly exceed the federal EPA maximum contaminant level (MCL) that goes into effect in 2028
- Thurston PUD was an early implementor of PFAS testing and identified the somewhat elevated levels of PFAS at the Tanglewilde-Thompson Place water system before testing was done by most other municipalities
- Largely because of this proactive approach to identifying presence of PFAS, Thurston PUD has secured a grant of \$3,500,000 to install treatment for the Tanglewilde water system

PFAS Treatment Project (Continued)

- In August 2024 Thurston PUD retained the services of the engineering firm Stantec for design of a PFAS treatment system for Tanglewilde-Thompson Place
- A pilot (test program) was recently completed. Based on results of testing and piloting, Stantec is developing a full-scale water treatment design
- Construction is expected to start in late 2025 and complete in Autumn 2026



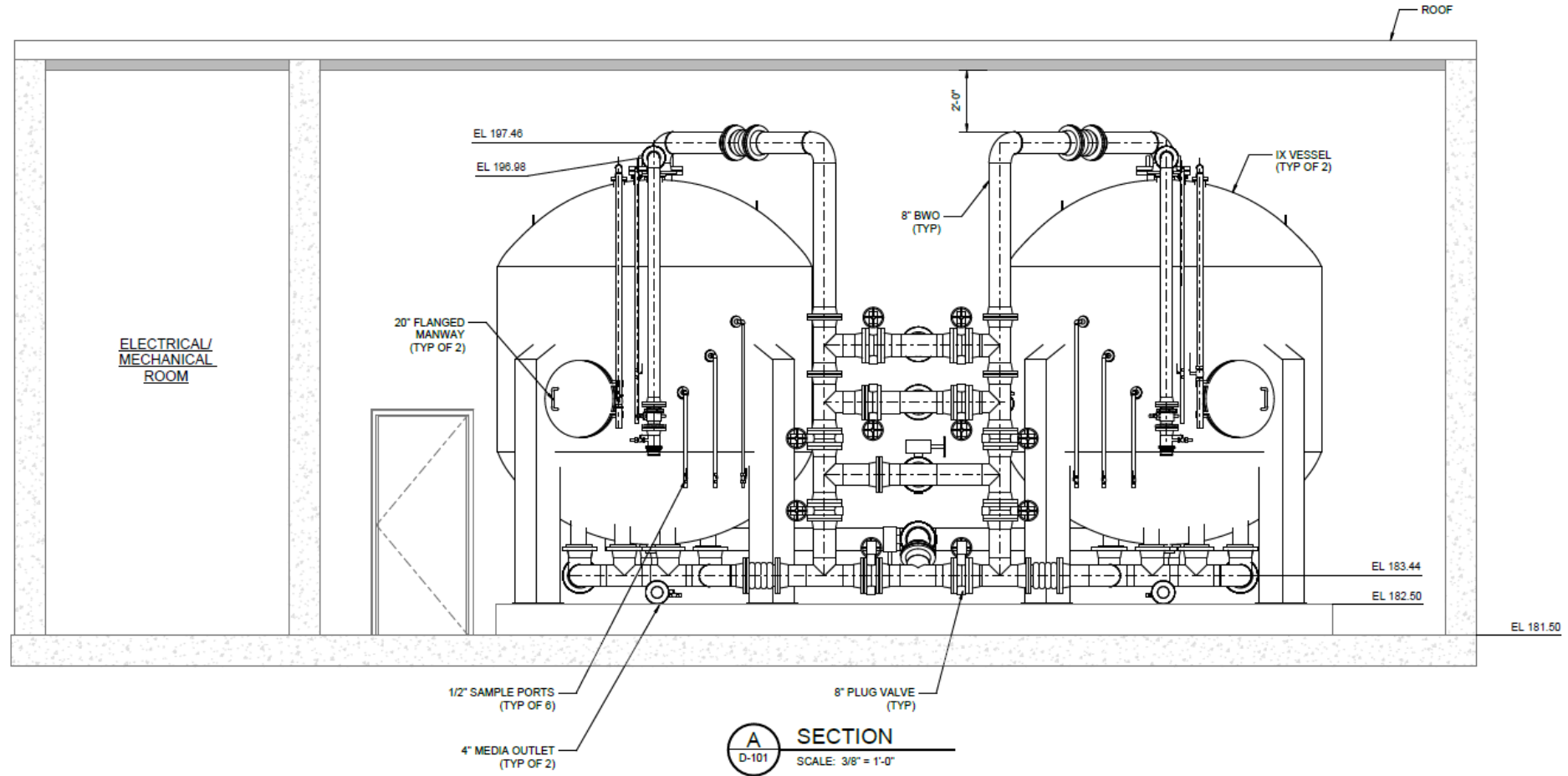
PFAS Treatment Building Addition Preliminary Site Plan
 (Located at Tanglewilde Recreation Center site, proposed 1,650 sf building)



Draft PFAS Treatment Building - Conceptual View



Draft PFAS Treatment Building - Front View



PFAS Treatment System - Elevation View

Questions

For those attending on a personal device (like a computer, cell phone, or tablet), select the “Raise Hand” feature to indicate you’d like to speak- you will need to unmute yourself once you’re called on

For those attending by phone audio only, press *9 to raise your hand to speak - you will need to unmute yourself by pressing *6 once you’re called on

Please mute all other audio before speaking - using multiple devices can cause audio feedback

Onsite Chlorine Production

- Most drinking water in USA is treated with chlorine to provide protection against any inadvertent bacterial contamination. Tanglewilde uses a very low level of sodium hypochlorite (liquid chlorine bleach) for such protection
- Supply chain difficulties in 2021 resulted in very limited supply and difficulty sourcing sodium hypochlorite for local utilities
- As both a cost savings measure and to mitigate against future supply interruptions, Thurston PUD will be installing Onsite Sodium Hypochlorite Generation (OSHG)
- OSHG uses salt and electricity to produce very safe, low concentration liquid sodium hypochlorite for onsite use. Concentration is about 0.8 percent, roughly one sixth that of household bleach

Onsite Chlorine Production (Continued)

- OSHG is very simple and safe and consists of using an electrode to ionize saltwater
- Thurston PUD plans to install a small, self-contained system; the generation unit is roughly the size of a standard kitchen appliance and is very low maintenance
- Upfront cost of installing the system is approximately \$80,000. Once installed, cost of salt and electricity to generate chlorine is roughly $1/10^{\text{th}}$ that of purchased chlorine
- Thurston PUD has agreed to provide chlorine at cost to TRC for the community pool
- Long-term cost (including consumables, upfront equipment cost, maintenance, and replacement) is about one-third ($1/3$) to one-half ($1/2$) that of purchased chlorine

Example: 0.8% Sodium Hypochlorite Generation System

CL Generator and Storage Tank



CL Generator,
Power Supply,
and Controller



CL Generator
Cells



Photos courtesy of Fruitland Water Co.

Summary

- Thurston PUD is investing significant resources in the Tanglewilde-Thompson Place water system over the next 15 years
- These projects are in the best interest of the health and welfare of the community
- These items are budgeted and covered by customers PUD-wide through water rates and capital surcharges
- Thurston PUD has worked diligently to secure over \$3.5 million in grant funding and \$10 million in very low interest loans
- Thurston PUD will continue to pursue grants and other funding to minimize cost burden on PUD customers

Questions

For those attending on a personal device (like a computer, cell phone, or tablet), select the "Raise Hand" feature to indicate you'd like to speak- you will need to unmute yourself once you're called on

For those attending by phone audio only, press *9 to raise your hand to speak - you will need to unmute yourself by pressing *6 once you're called on

Please mute all other audio before speaking - using multiple devices can cause audio feedback



Questions?

Questions or comments after the meeting? Contact Thurston PUD staff using one of the methods below:

Main: (360) 357-8783

Toll-Free: (866) 357-8783

Email: PUDCustomerService@thurstonpud.org