

Not Just A Day at the Beach:

Balancing Competing Priorities While Upgrading an Inlet Station

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murraysmith



Agenda



- 01 Project Background
- 02 Stakeholders
- 03 Design
- 04 Construction
- 05 Lessons Learned
- 06 Q&A

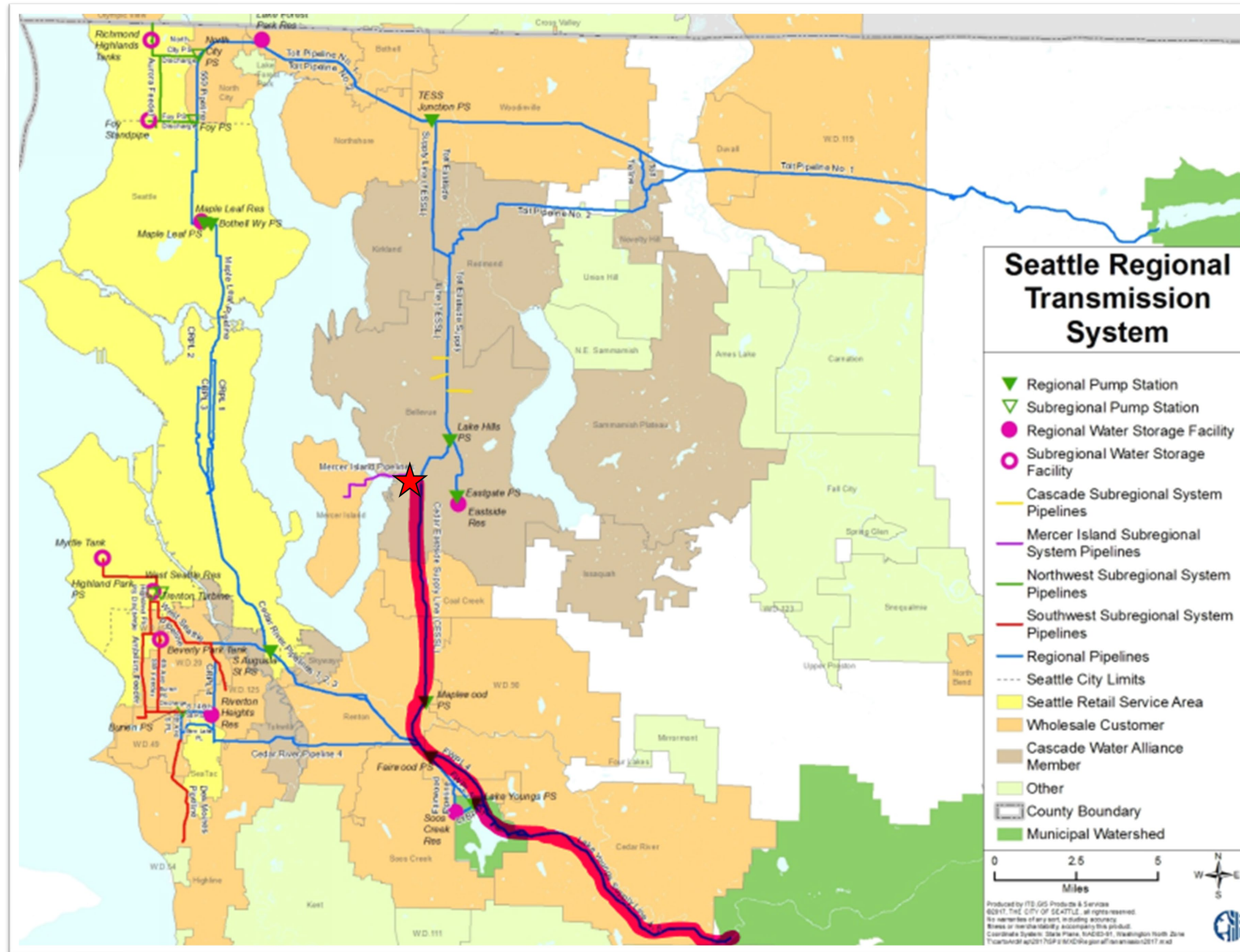
Project Background

Project Team

Owner	City of Bellevue
Prime Consultant	Murraysmith, Inc.
Structural Engineer	Peterson Structural Engineers, Inc.
Electrical Engineer	R&W Engineering, Inc.
Instrumentation & Controls	S&B, Inc.
Geotechnical Engineer	HWA Geosciences, Inc.

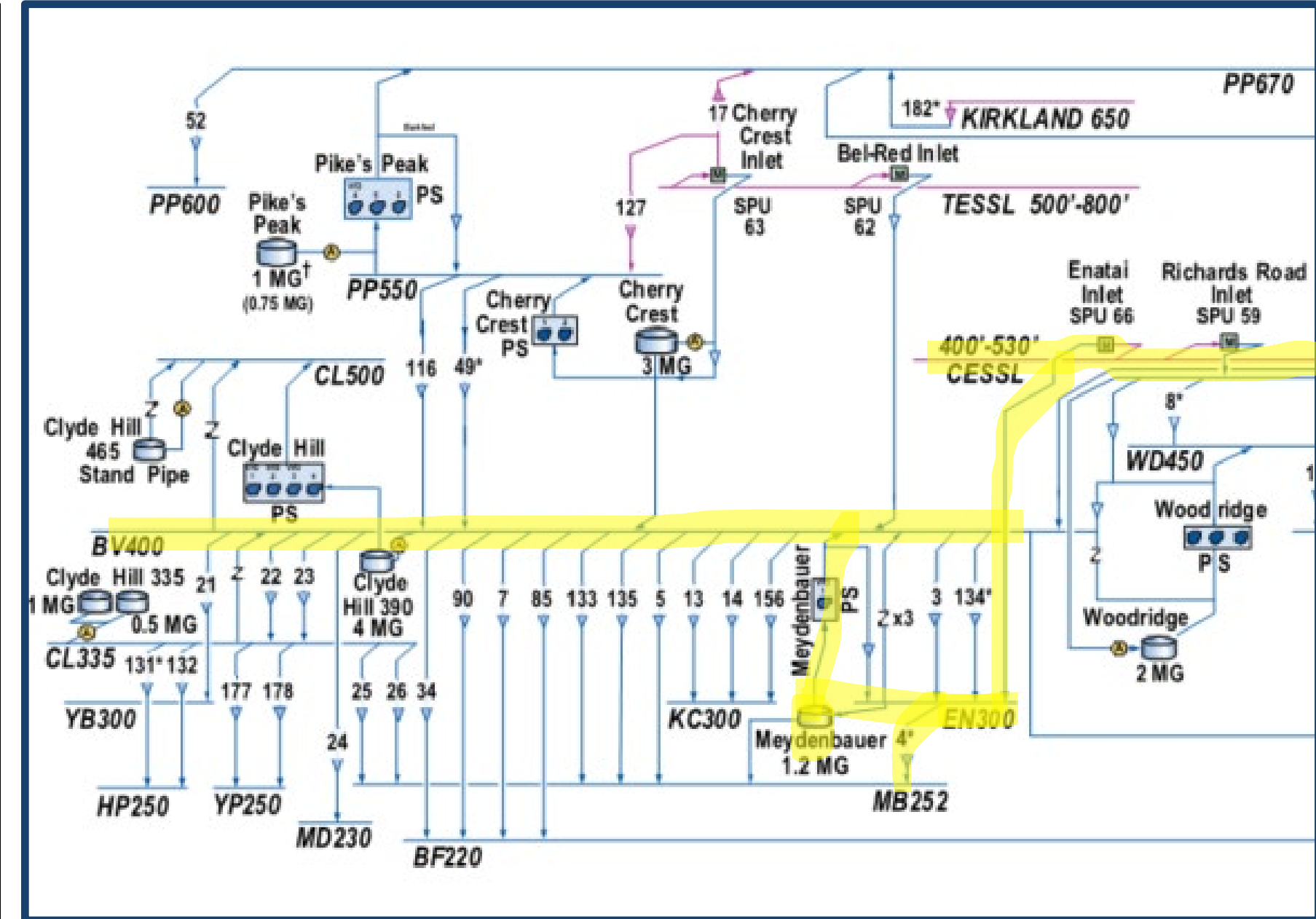
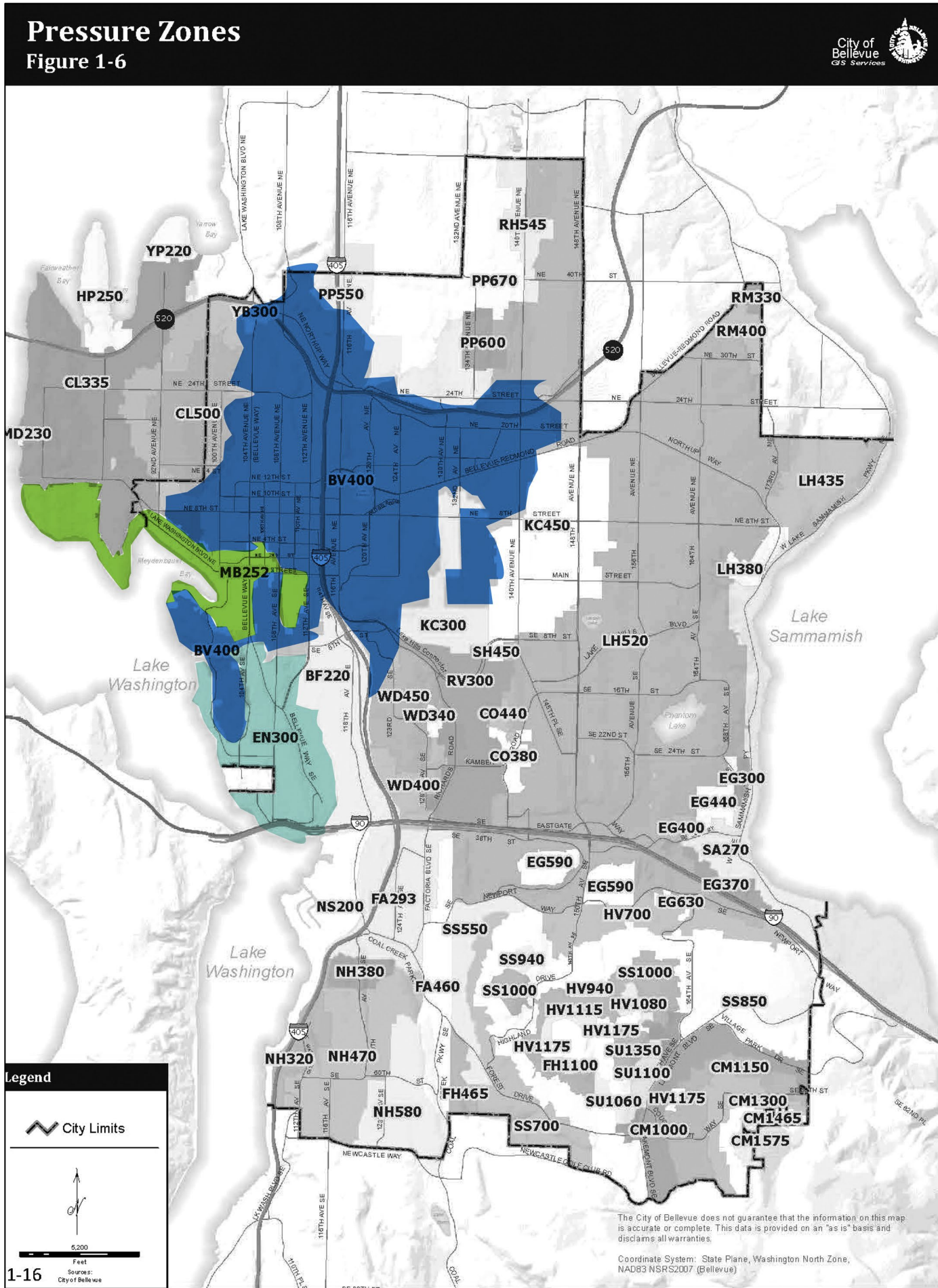


Regional Supply



- Cedar East Side Supply Line (CESSL)
- Mercer Island Pipeline
- Wholesale Customer

System Background



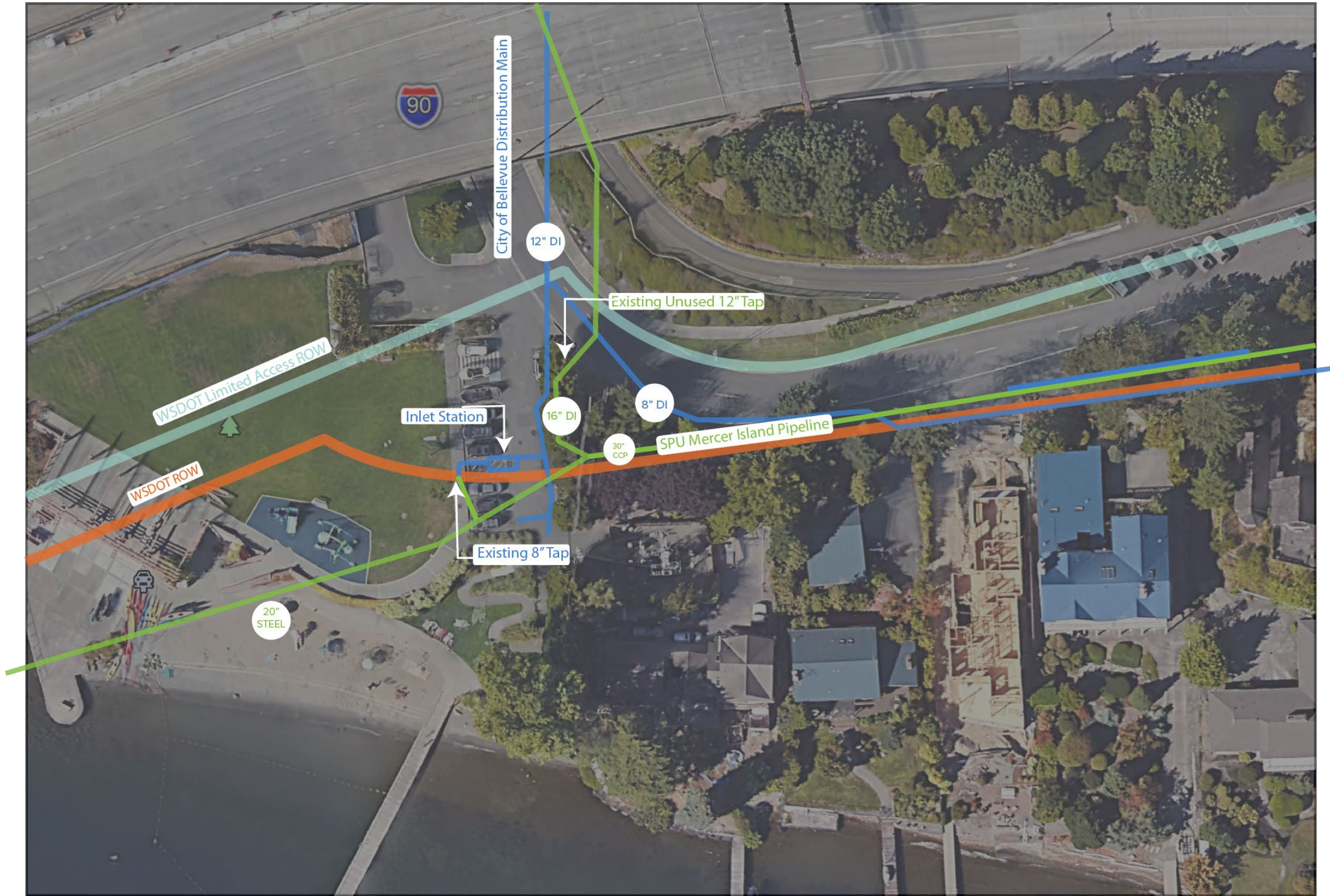
- Supply to City of Bellevue EN300 Zone; MB252 via Meydenbauer Reservoir and BV400 Zone via Meydenbauer Pump Station

Popular Enatai Beach Park



Project Location

Existing Inlet Station



Existing Inlet Station

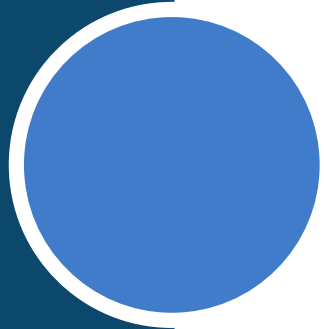


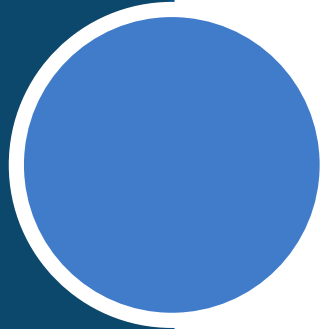
- Installed in the 1960's
- Access to vaults no longer meets City safety requirements
- Infrastructure is undersized to meet growth
- No remote control capabilities



Stakeholders

Stakeholders





Stakeholder	Criteria
City of Bellevue	<ul style="list-style-type: none"> Reliable supply to EN300 Zone Minimal shutdowns during construction Capacity for future expansion
Seattle Public Utilities	<ul style="list-style-type: none"> New meter vault meeting current criteria Utilize existing unused 12" tap
City of Bellevue Parks Department	<ul style="list-style-type: none"> Keep park open throughout project No construction in summer months No reduction in useable park space (federal funding requirement)
Residents / Park Users	<ul style="list-style-type: none"> Maintain access to SE Lake Rd Minimize park closures
Paddle Sports Rental Company	<ul style="list-style-type: none"> No construction in summer months
King County	<ul style="list-style-type: none"> Coordinate design with 24" sanitary interceptor design Avoid overlapping construction windows
WSDOT	<ul style="list-style-type: none"> Permit requirements based upon level of ROW impacts FHWA approval if limited access ROW impacted

Project Design

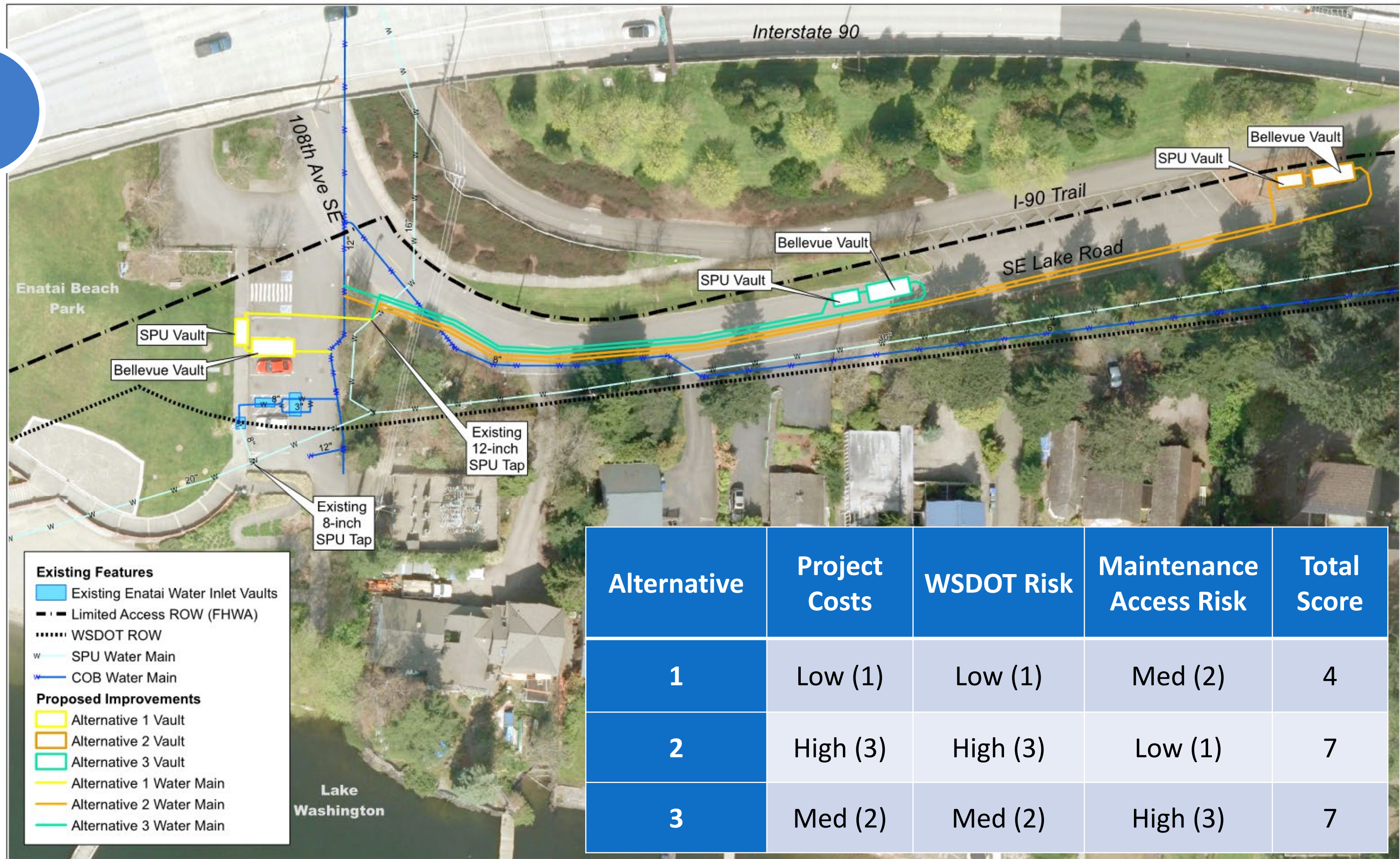


DESIGN

Alternative Development – Minimum Criteria

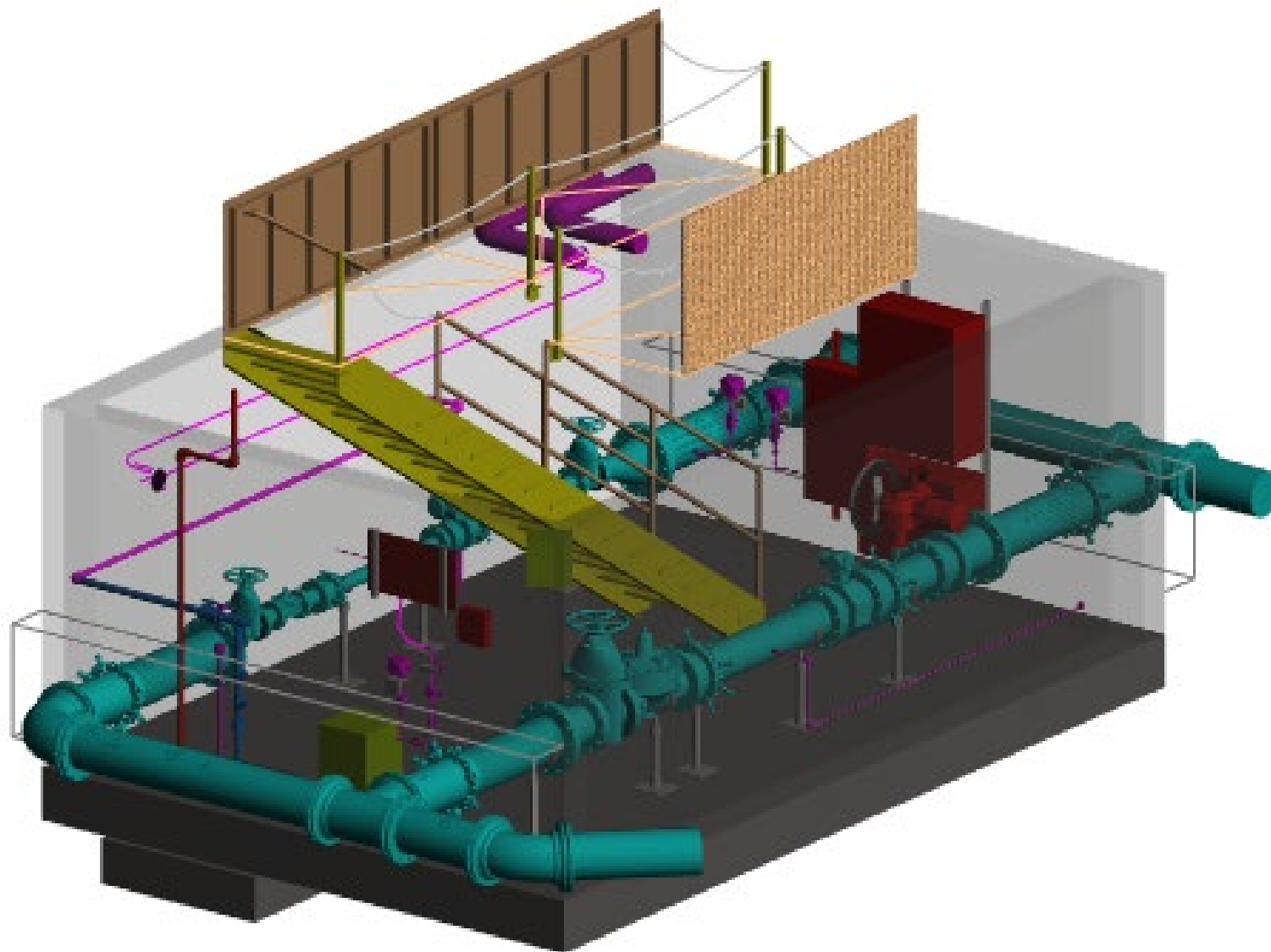
Item	Requirement
Flow meter, control valves, and water main sizing	<ul style="list-style-type: none"> • Inlet station capacity at least 2,925 gpm • Velocity below 10 feet/second
Vault Access	<ul style="list-style-type: none"> • Safe access per current standards • Adequate room for operations and maintenance activities
Access hatch location	<ul style="list-style-type: none"> • Outside of bike lanes • Only SPU vault cover within sidewalks
Control valve operation	<ul style="list-style-type: none"> • Remote monitoring and control capability
Park impacts	<ul style="list-style-type: none"> • No reduction to usable area within Enatai Beach Park, including the number of parking spaces
EN300 Zone fire flow impacts	<ul style="list-style-type: none"> • Minimize amount of time that EN300 Zone must rely on a secondary supply facility.

Alternatives Analysis



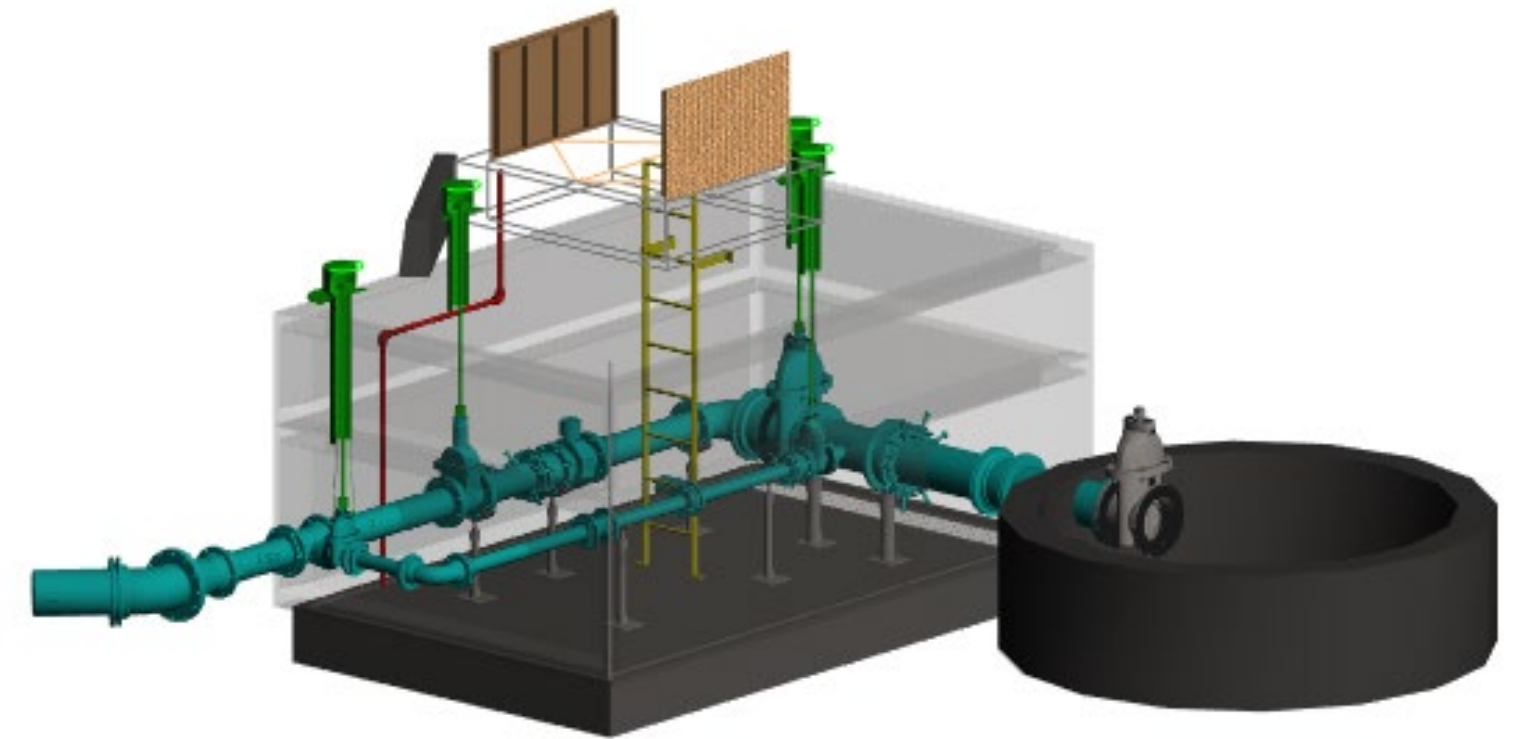
Bellevue PRV Vault

- No Confined Space
- Access to PRVs at all times
- 12" Pipe to extend into vault to allow for future expansion



SPU Meter Vault

- 8" Meter and bypass
- Adjacent to Manhole



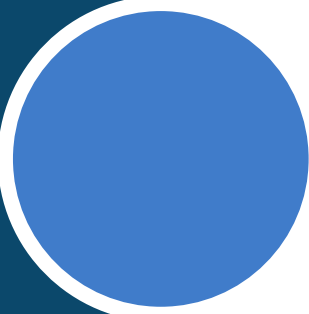
Site Design



- Maintain 2 ADA Parking Spaces and a ramp
- Steep slopes on site
- SPU meter vault in planter area

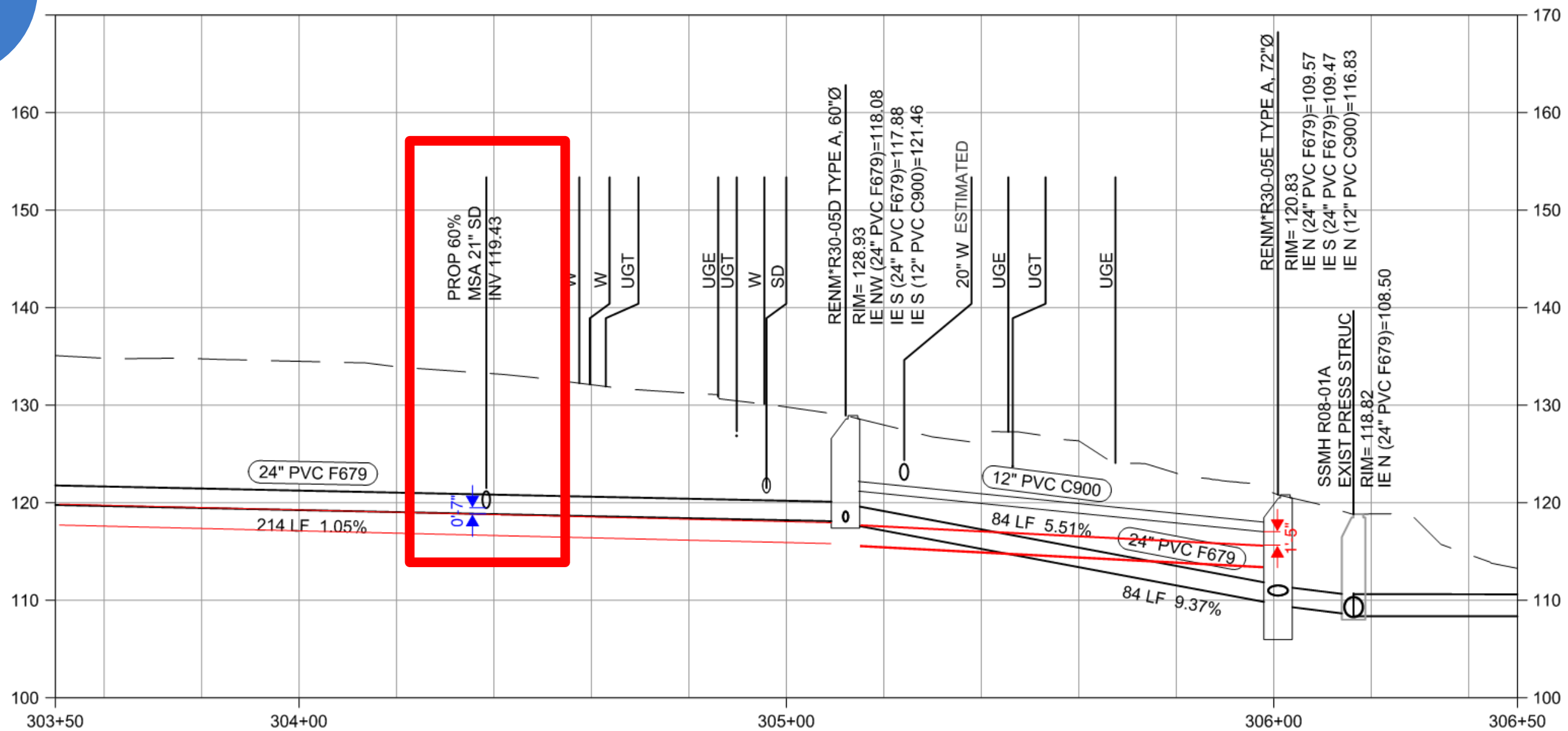


Stormwater Improvements



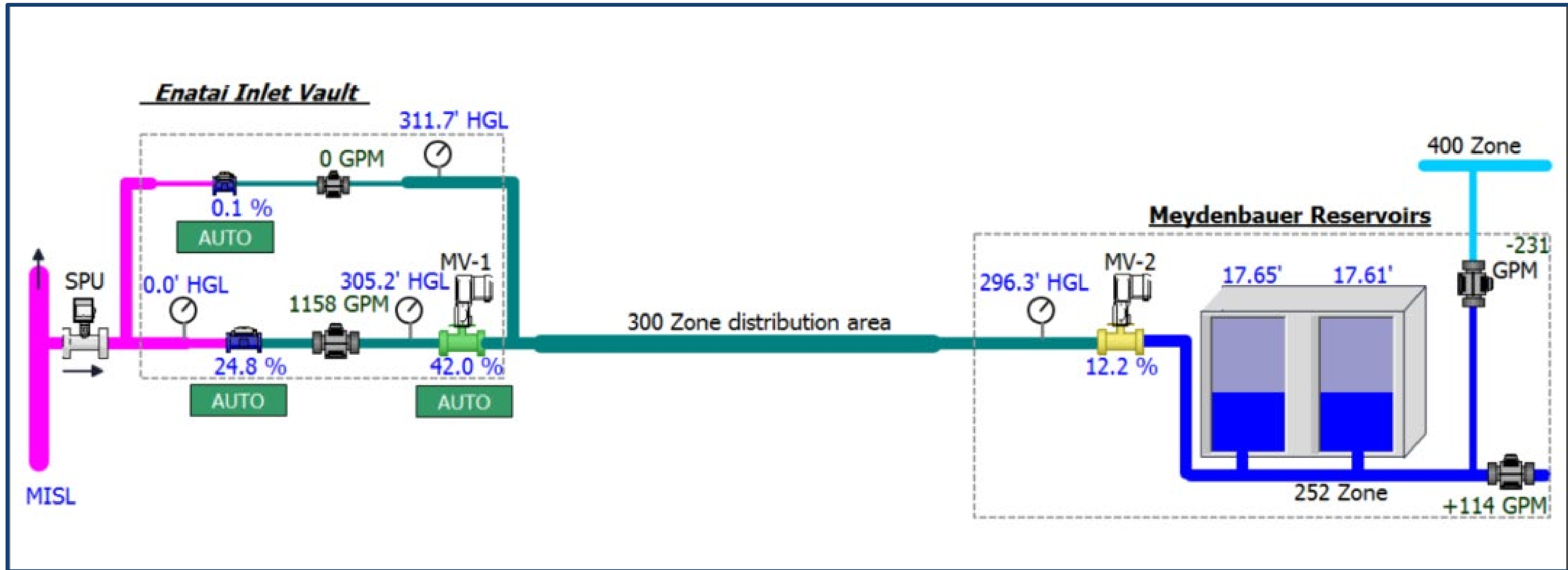
Design

King County Coordination



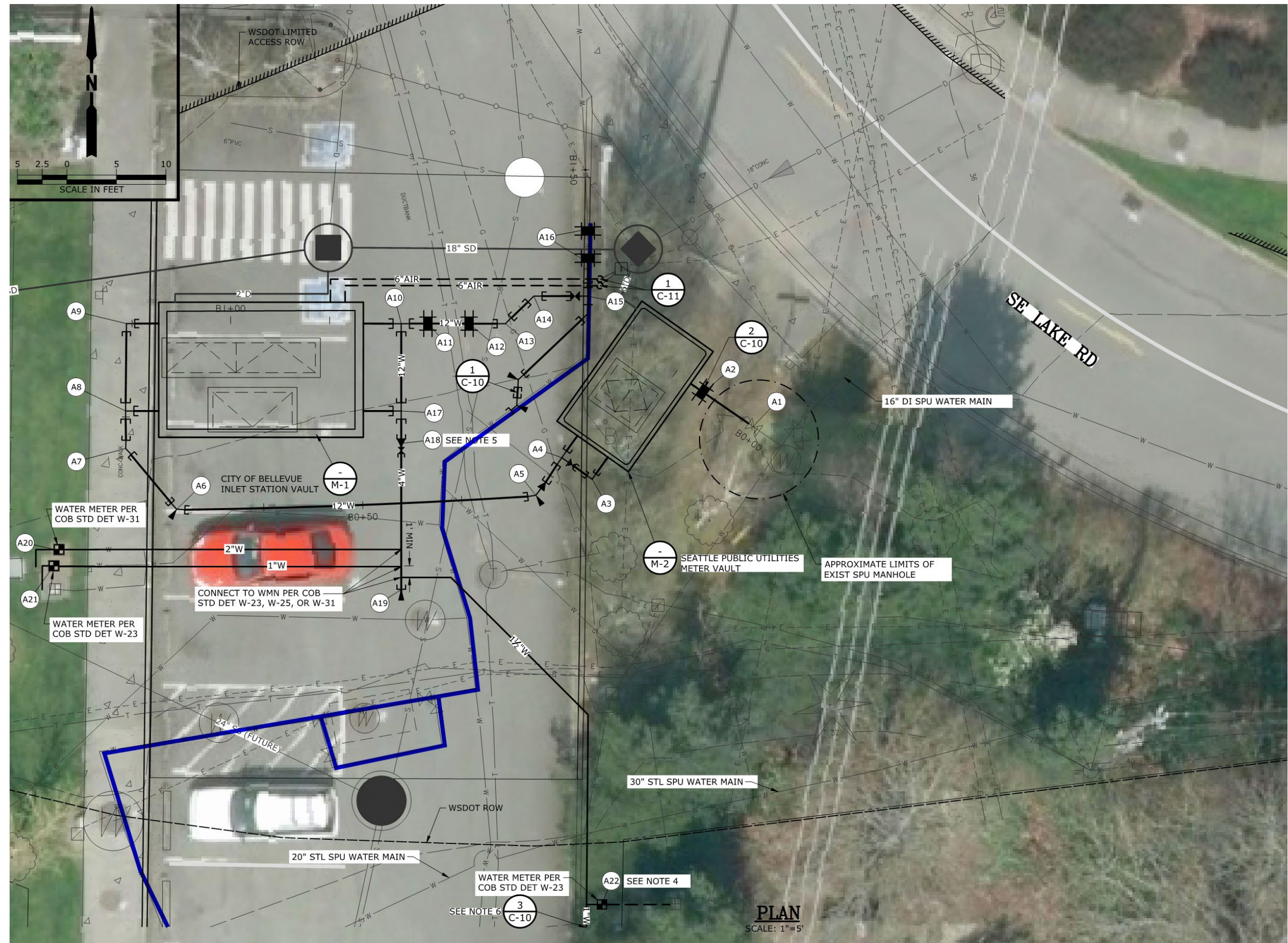
- Solution must keep King County design criteria in mind
 - Pipe Capacity
 - Utility Crossings

Station Control Strategy: Flow & Pressure



Construction

Objective A – Minimize Shutdowns to EN300 Zone



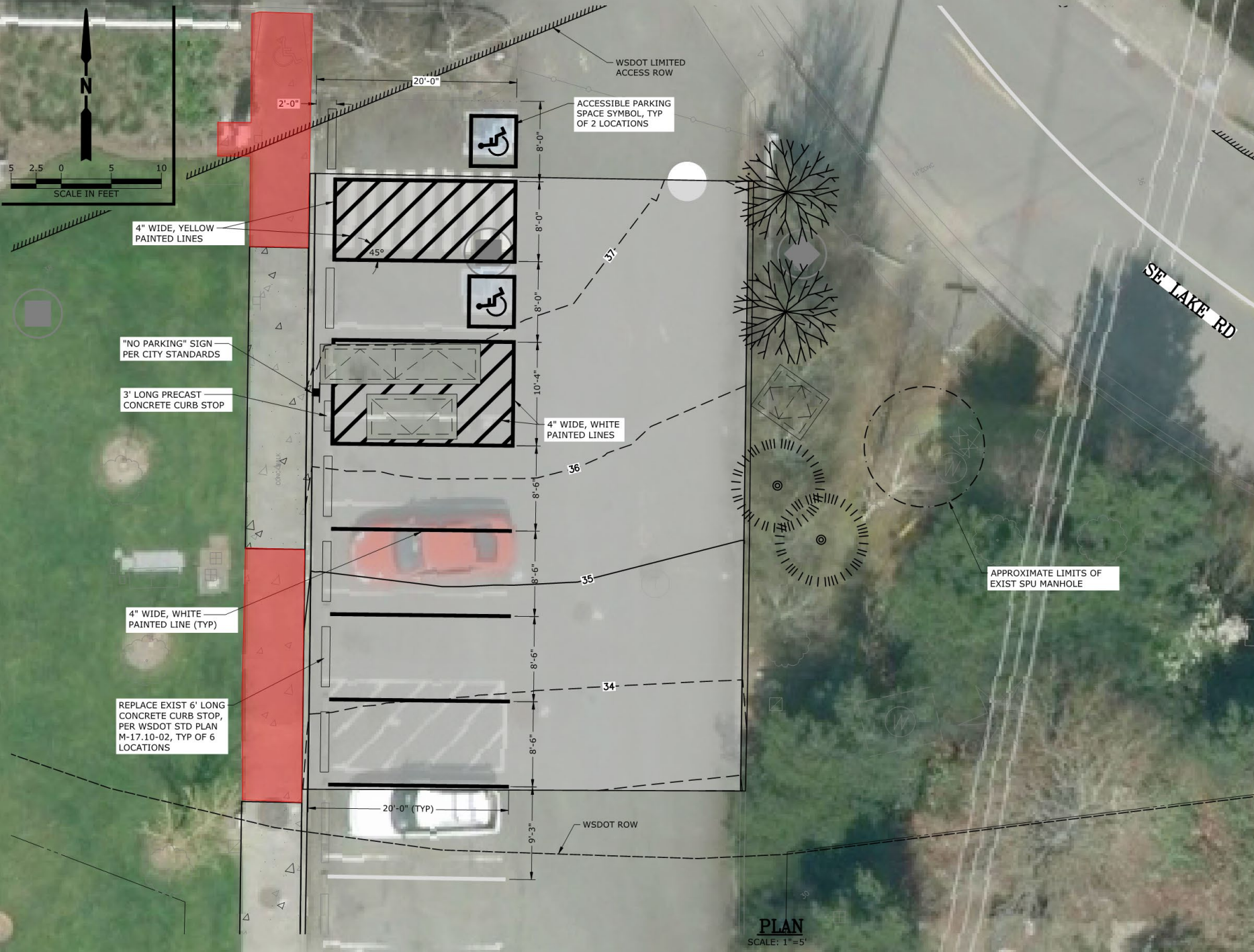
Objective B – Maintain Access



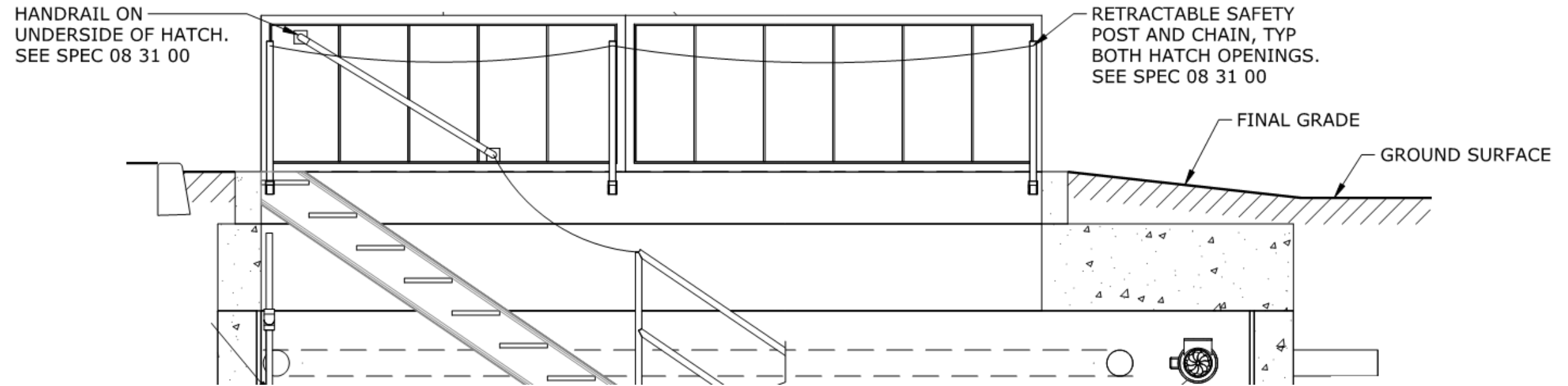


Objective C – Improve Site Conditions

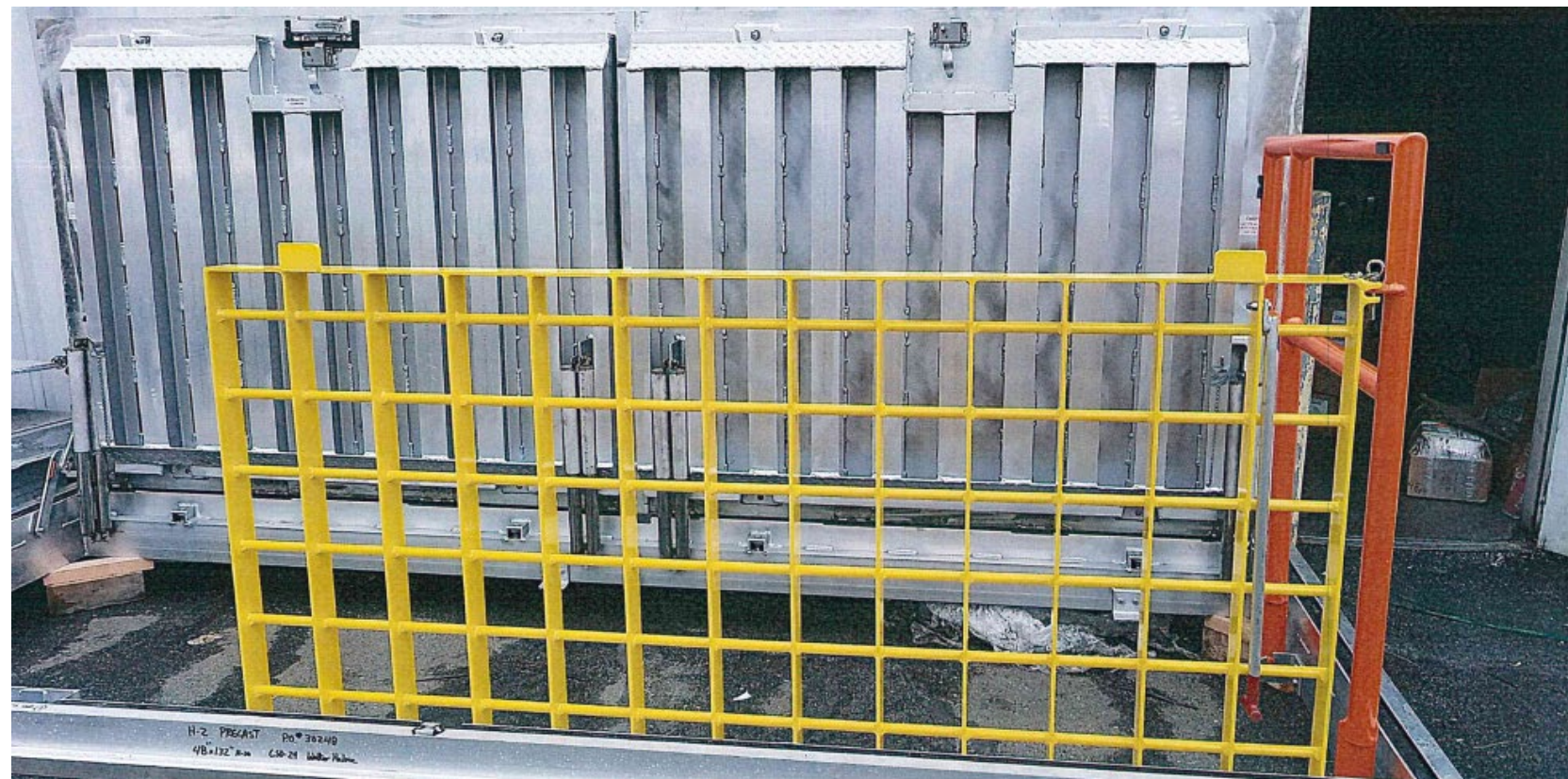
Construction



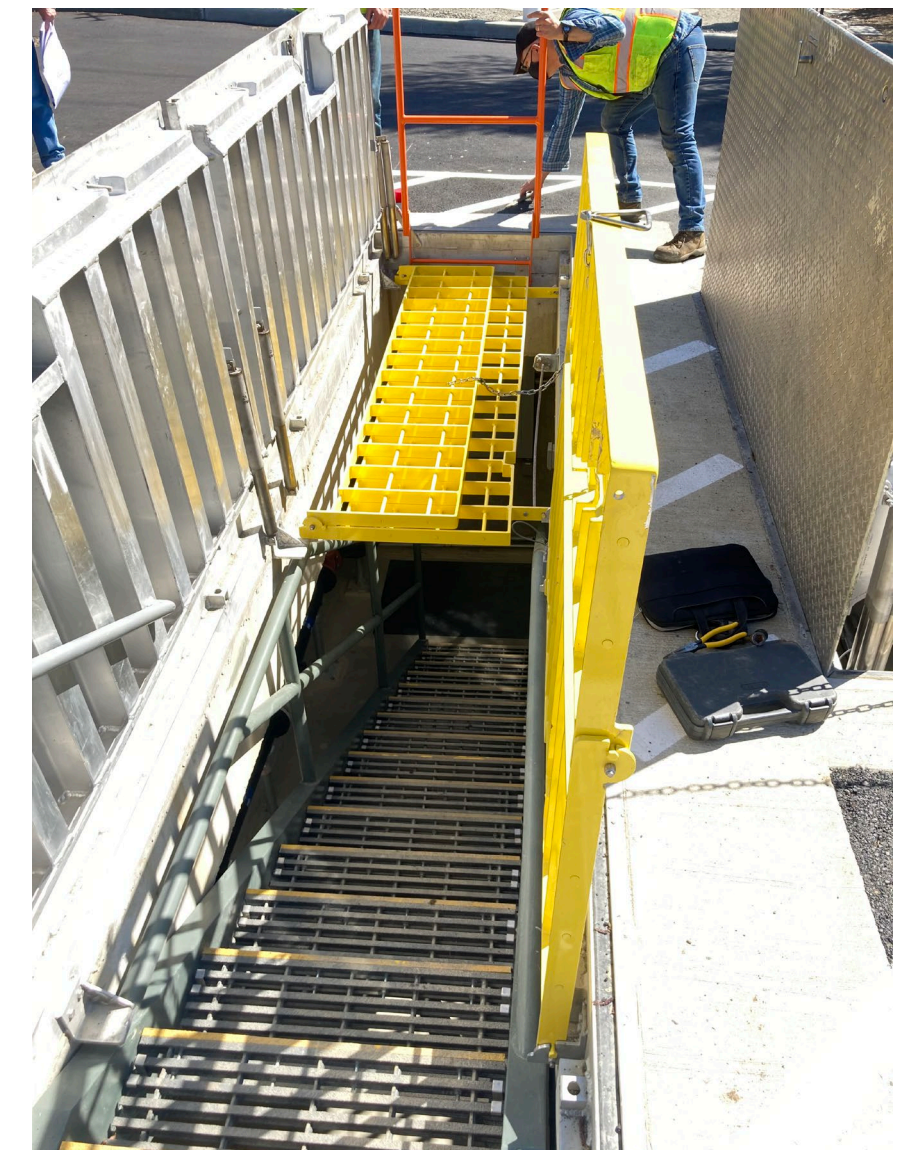
Objective D – Vault Access and Safety



Original Design



Revised Design



Lessons Learned



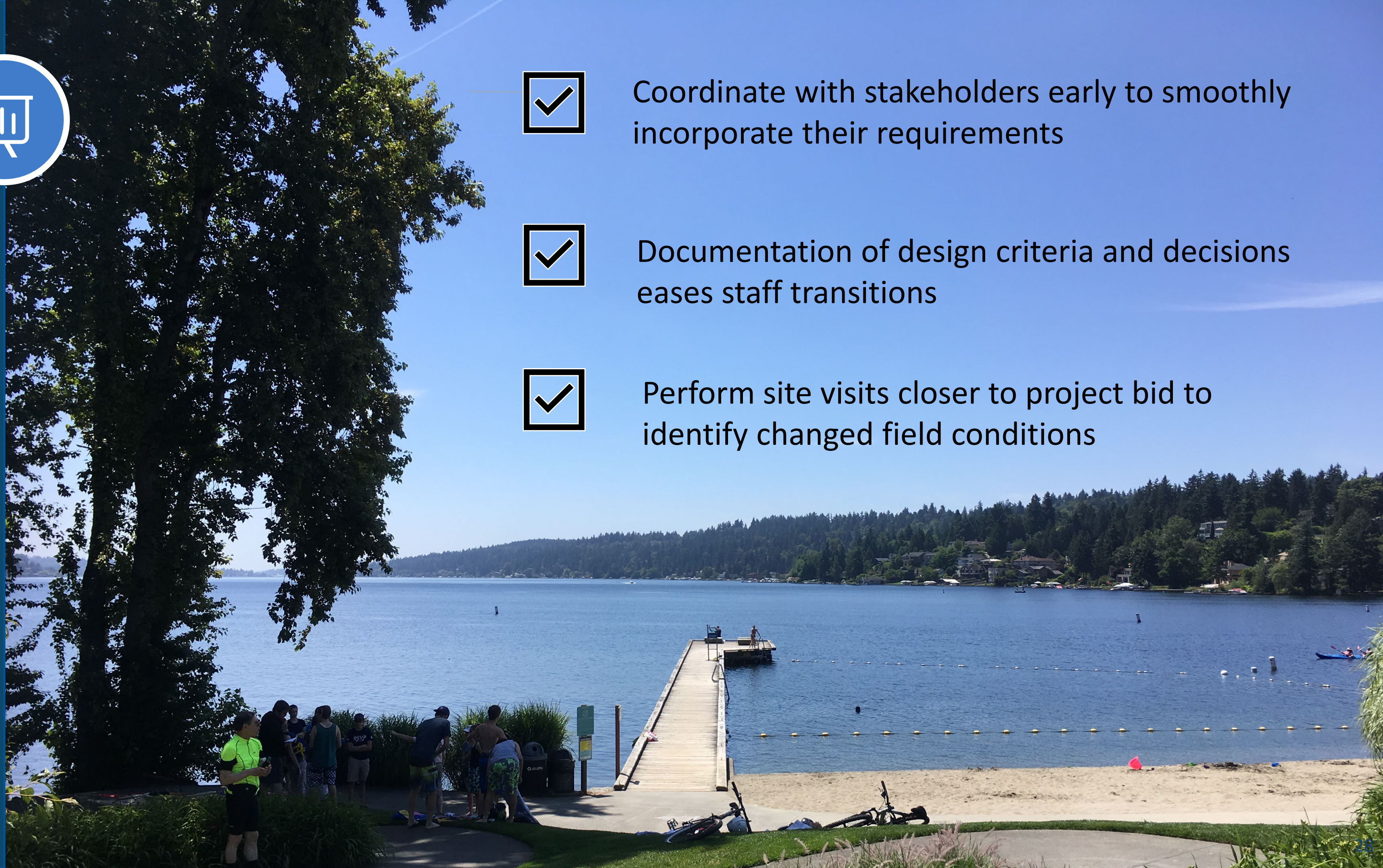
Coordinate with stakeholders early to smoothly incorporate their requirements



Documentation of design criteria and decisions eases staff transitions



Perform site visits closer to project bid to identify changed field conditions





Q&A

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Thank you!