



Protecting Seattle's Waterways

Ship Canal Water Quality Project (SCWQP) Seattle Design Commission Presentation

Concept Level Review

January 19, 2017

PAR: 3024714





Glossary of Terms

Conveyance: Conveyance pipes will be used to bring flows from the existing sewer pipe network to the tunnel.

CSO (*Combined Sewage Overflow*): Relief points in sewer systems that carry sewage and stormwater in the same pipe. When heavy rain fills the pipes, CSOs release sewage and stormwater into rivers and lakes, thus harming people and the environment.

Drop Structure/Drop Shaft: Vertical structures that bring flows into the tunnel, and provide points of access for maintenance.

Forcemain: A pressurized pipe that carries the wastewater from the storage tank back into the combined sewer in order to empty the tank

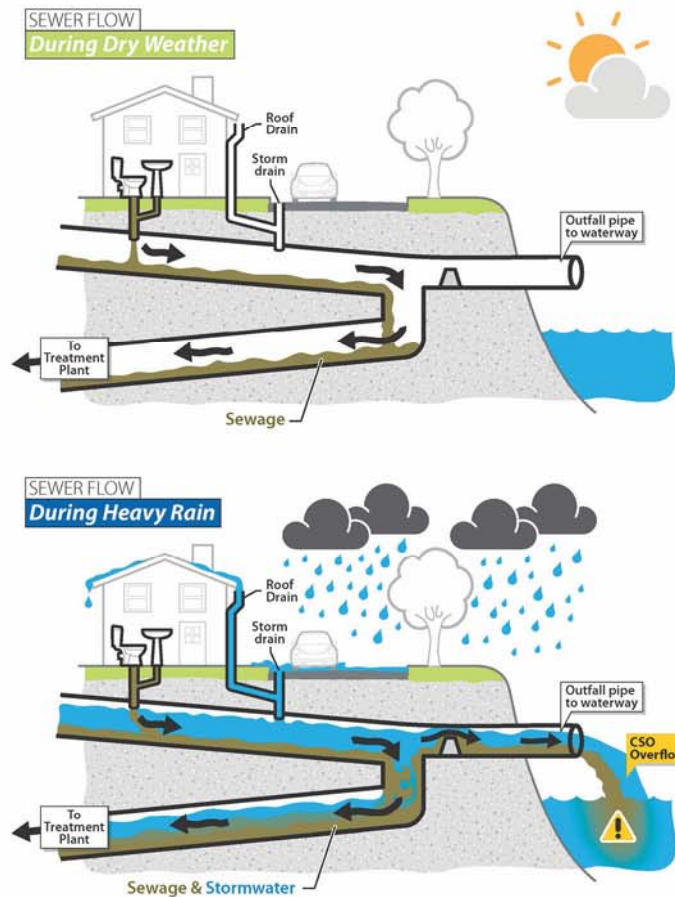
Outfall: These were built when the combined sewer system was constructed, (~ 100 years ago). The outfalls were originally used to convey untreated sewage to waterbodies.

Pump Station: Located at the West Portal to empty the storage tunnel

SCWQP (*Ship Canal Water Quality Project*): Project name

Siphon: A conveyance pipe/line that carries wastewater

TEPS (*Tunnel Effluent Pump Station*): A permanent pump station that will be constructed at the West Portal used to pump the tunnel effluent (liquid waste or sewage) to the wastewater collection system owned and operated by King County. The TEPS will have automated operations, and will include safety and ventilation systems, electrical/control systems, systems designed for long-term operation and maintenance, and facilities for SPU staff.

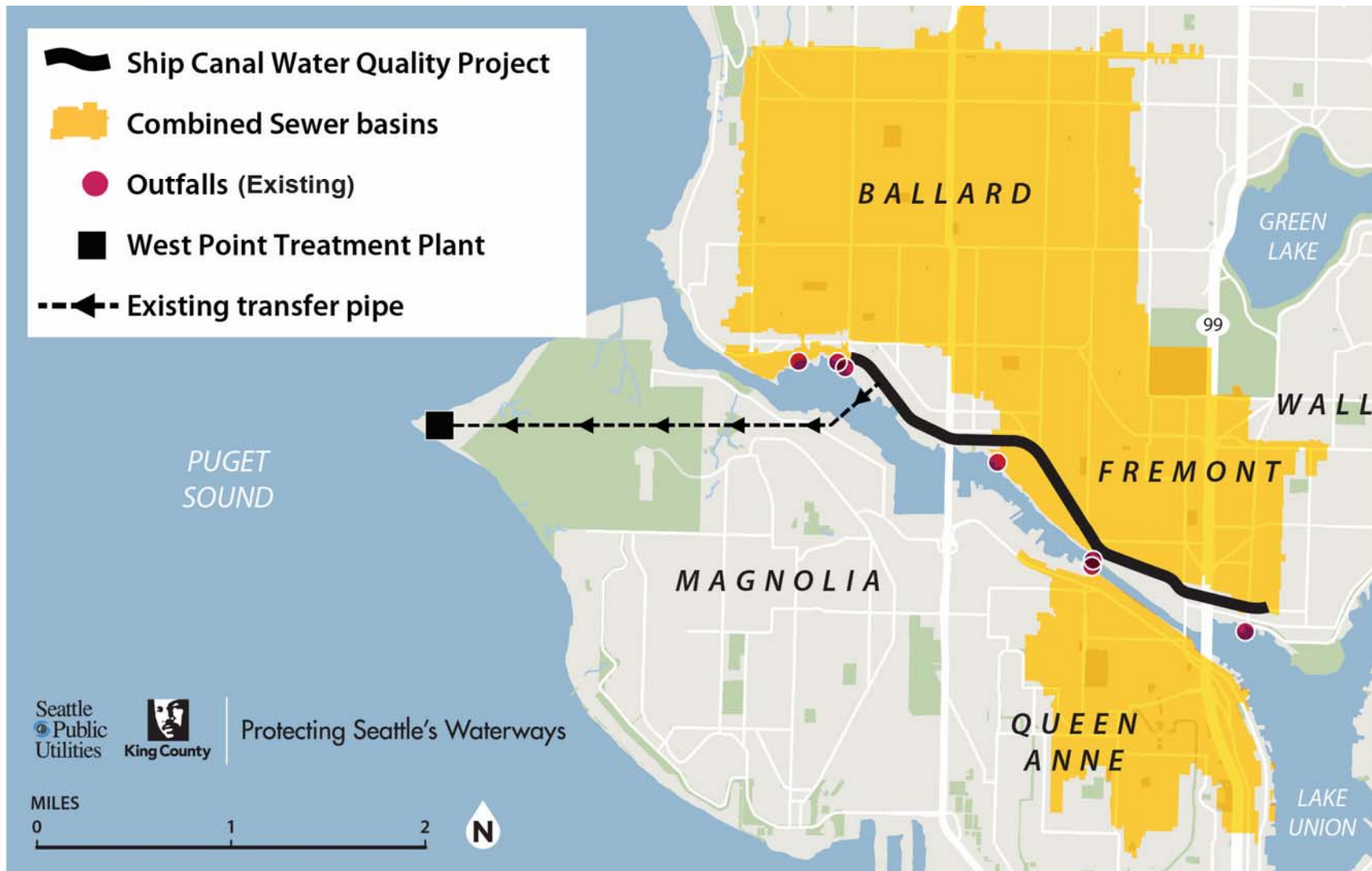


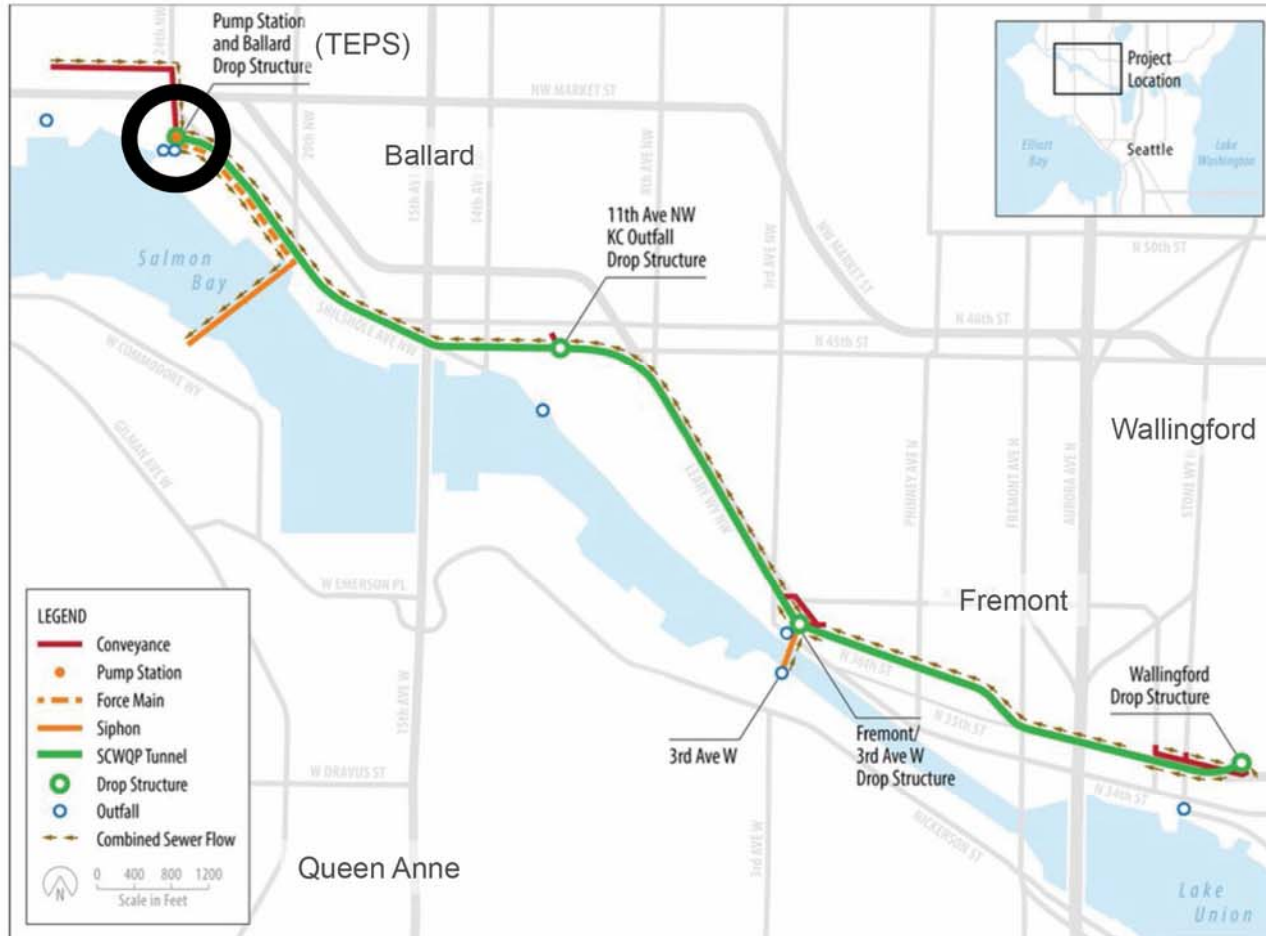
Where will this project be located?



Project Overview

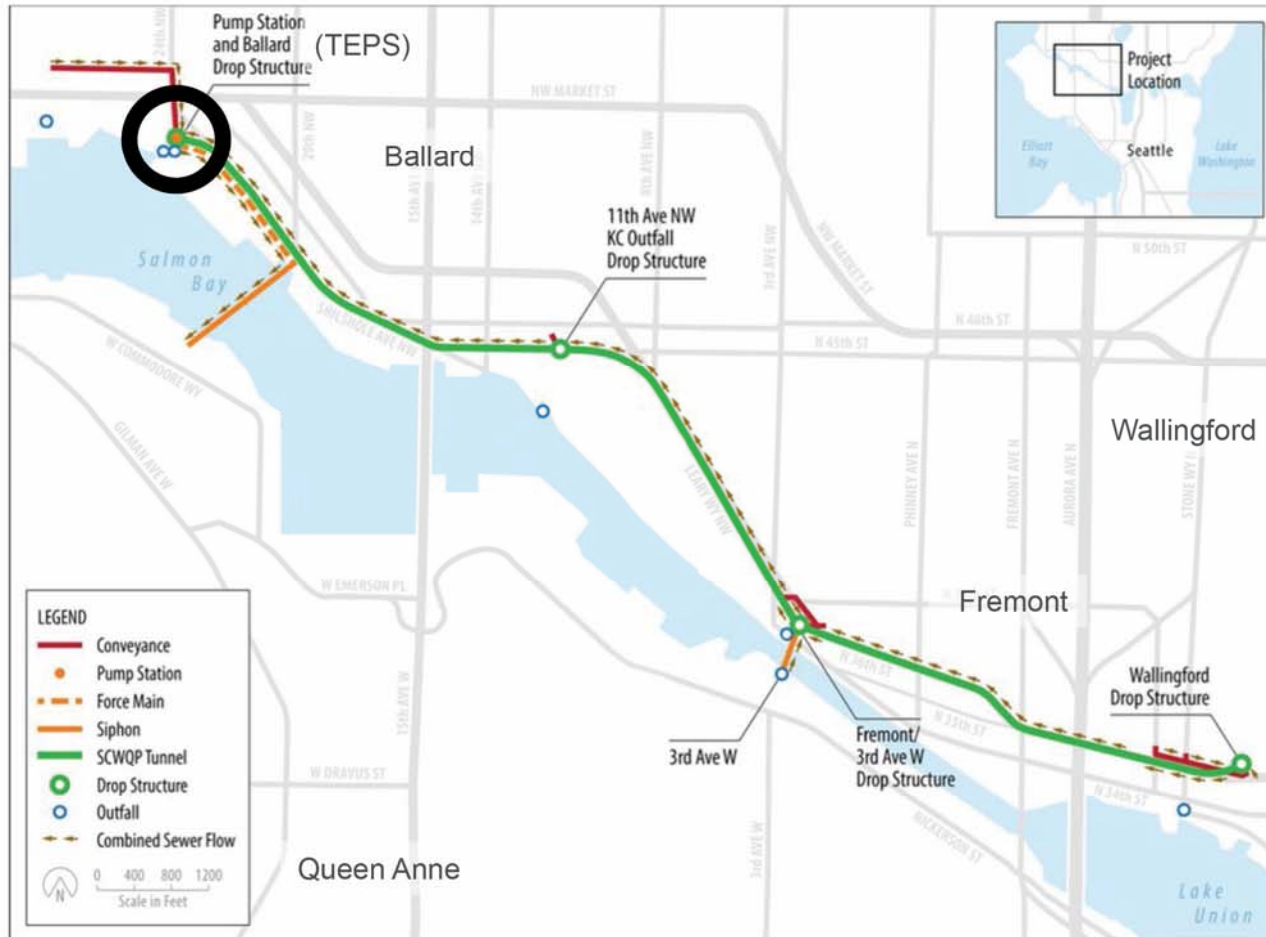
- Shared project with King County
- 2.7 mile storage tunnel between Ballard and Wallingford
- Tunnel will temporarily store more than 15 million gallons of combined sewer overflow (CSO)
- Stores CSO from Ballard, Fremont, Wallingford and North Queen Anne
- After storm event, flows will be sent to existing West Point Treatment Plant in Magnolia for treatment
- Project meets federal and state standards to limit CSOs at each outfall location to no more than 1 overflow event per year.
- Will prevent approximately 50 million gallons of CSOs from entering Lake Washington each year





Project Overview - Two Portals

- The tunnel boring machine will begin boring at the Tunnel Effluent Pump Station (TEPS)
- The tunnel boring machine will exit at the Wallingford Drop Structure



Project Overview

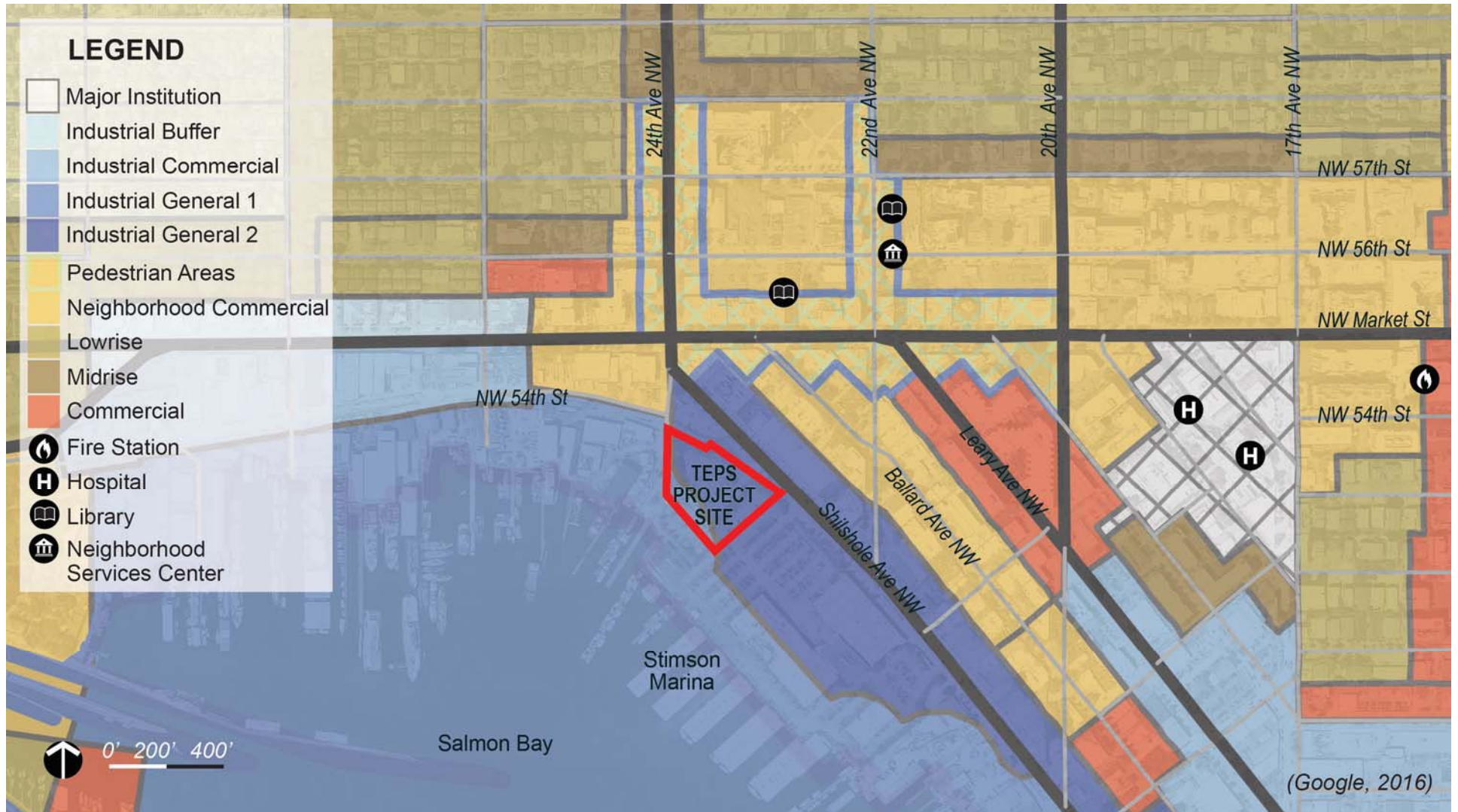
- Located in Ballard
- Station pumps the stored CSO from the tunnel to the Ballard siphon where the CSO will be conveyed for treatment at the West Point Wastewater Treatment Plant.
- An adjacent, City-owned pier will be rebuilt to transport excavated materials to a barge

Scope

- A below grade structure (shaft) and above grade pump station structure.
- The TEPS will have a vehicle access road, landscaping, and a site fence.

Schedule

- Design - Q1 2016 to Q3 2018
- Construction - Q2 2021 to Q1 2024







1 Ballard Public Library



2 Ballard Farmers Market



3 Ballard Avenue Historic District



TEPS - Neighborhood Context: Iconic Elements – Public Spaces





TEPS - Neighborhood Context: Iconic Elements – Neighboring Businesses



7 Lieb Marine Services



10 The Market Arms



8 Pacific Fisherman, Inc



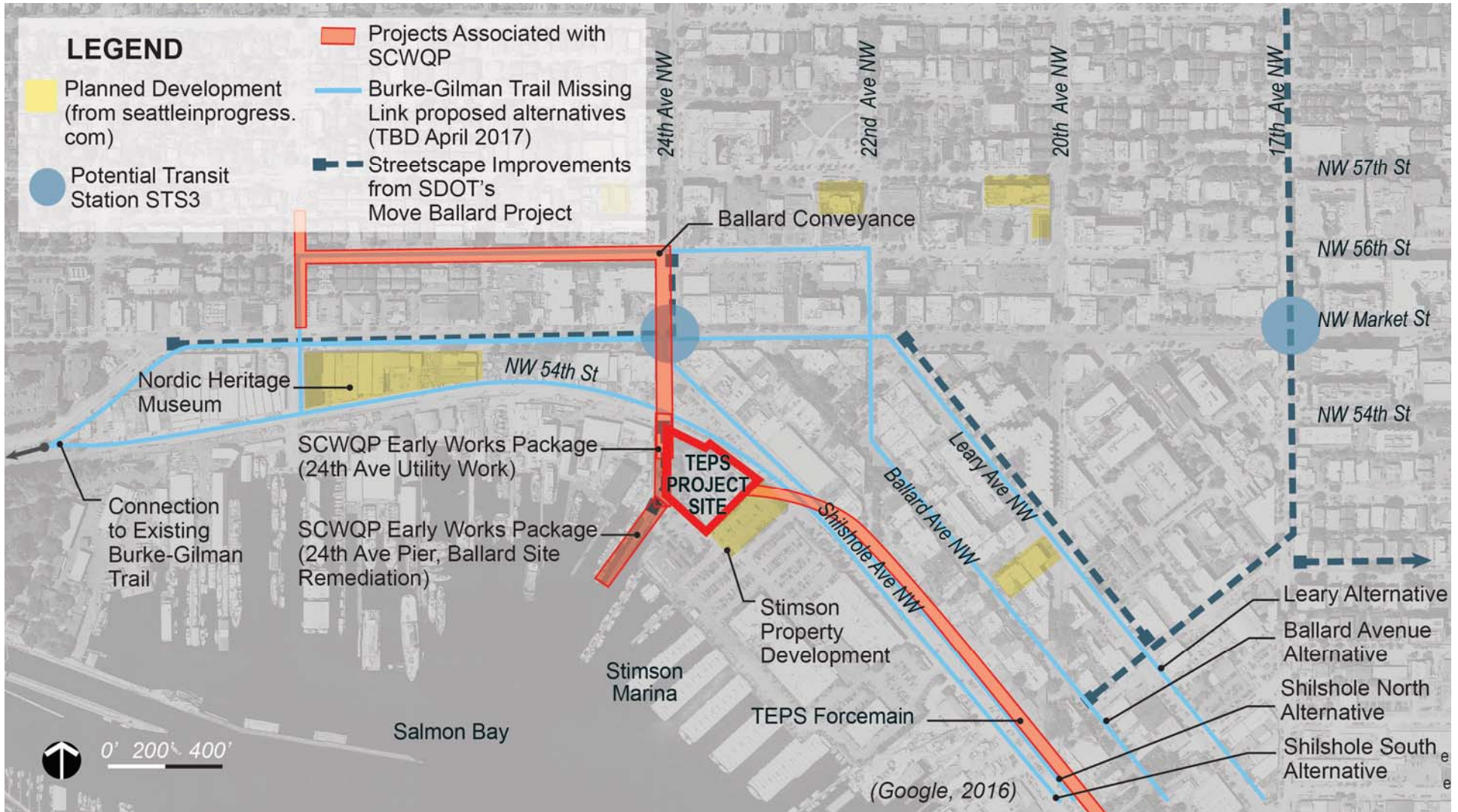
11 Magnum Self Storage

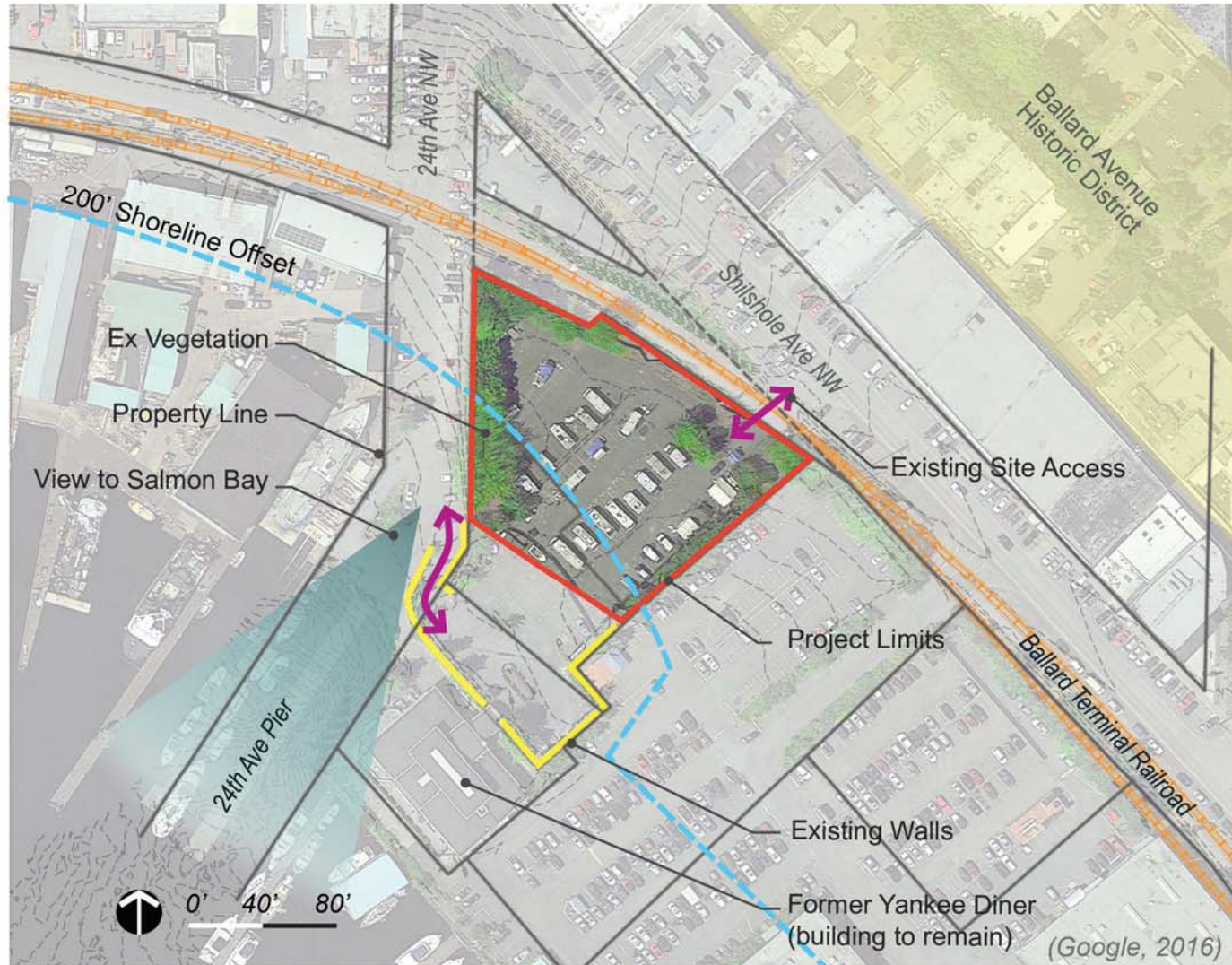


9 Pacific Fisherman, Inc



12 Trident Seafoods







TEPS - Site Analysis: Existing Site Photos





TEPS - Site Analysis: Existing Site Photos





TEPS - Site Analysis: Existing Site Photos







12



13



14

Programmatic Community Engagement

2011-2015: City of Seattle and King County crafting plan(s) to address water quality problems, including Combined Sewer Overflows.



Long Term Control Plan & Integrated Control Plan

- EIS scoping comment period

Plan to Protect Seattle's Waterways (2013-2015)

The long range plan to reduce CSO events.

- Stakeholder Advisory Group
- EIS scoping comment period and public
- Briefings and presentations
- DEIS public hearing



SCWQP Community Engagement



Project Wide

- Fairs & Festivals
- Meetings: Neighborhood Councils, Advisory Boards, Associations
- Briefings: Neighbors & Stakeholders
- Notices: Geotech & other activities



In Ballard

Working Sessions focused on Ballard site plan and construction impacts

- April 2016
- September 2016
- October 2016

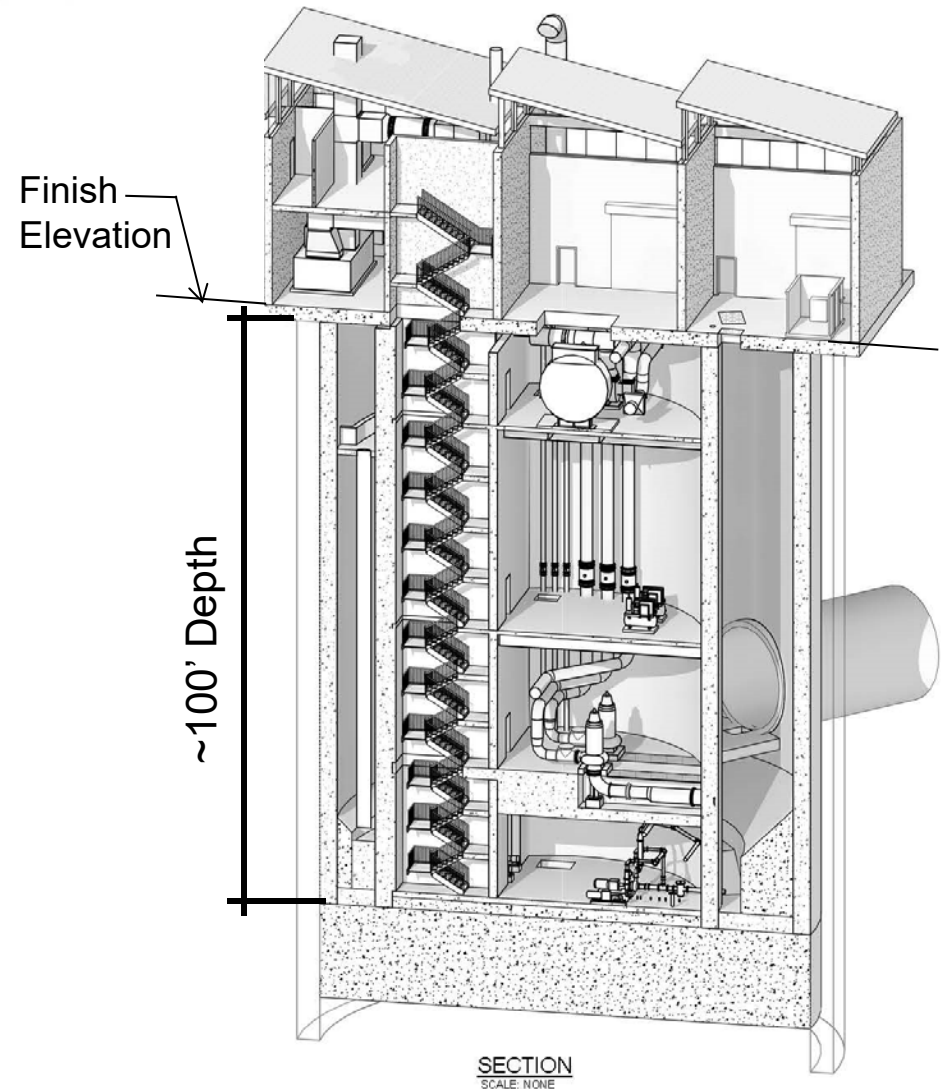


SCWQP Community Engagement – TEPS Design

- **Advisory Group - Begins Feb. 2017**
 - Review draft designs
 - Represent interests, concerns, and needs of the community
 - Provide focused feedback on site and building design
 - Provide guidance on community engagement
- **Meetings and briefings**
- **Open House**



- Drain the tunnel
- Dewatering Pumps
- Solid Pumps
- Odor Control
- Standby Generator
- Operation & Maintenance Area
- Site Access & Security
- Vehicle Circulation
- Stormwater Drainage







Resolution 31326: Citywide policy to maximize environmental quality, economic vitality, and social health of the city through the design, construction, operation, and maintenance of a building/site.

Pump House Structure/Building

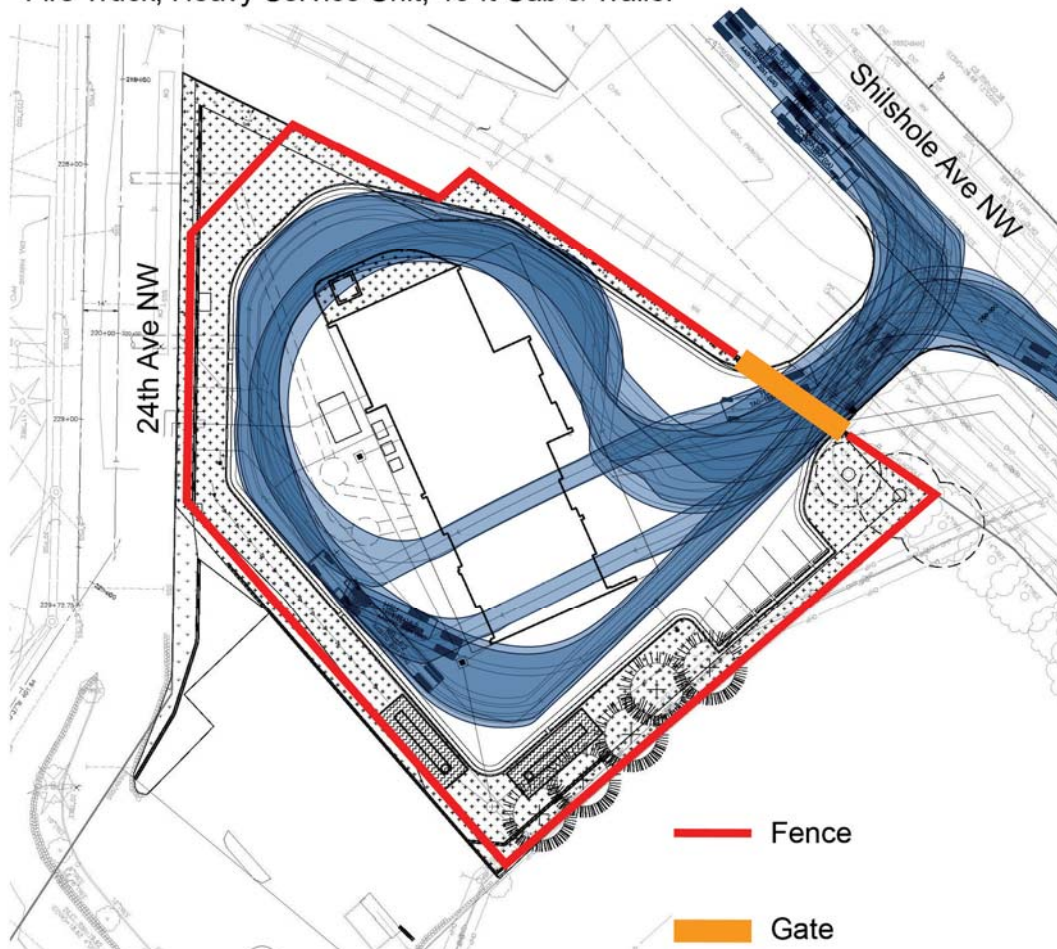
- Project will meet Resolution 31326. Currently, the building size is such that it would trigger the City Policy and therefore would be designed to meet LEED certification.

Other Sustainability Strategies Include:

- Prior to TEPS construction, approximately 18,770 cy of existing soil will be remediated
- Concept level plan resulted in 5% increase in pervious surfaces than pre-construction conditions
- Two 520 sf bioretention swales provide water quality treatment for on-site stormwater
- Increase tree canopy coverage to the extent feasible with larger trees
- A low water use, temporary irrigation system will be provided and used only for plant establishment (2-3 years)
- Pesticides and artificial fertilizers will be prohibited
- Removal of invasive species on site (Horsetail, English Ivy, and Himalayan Blackberry)

Vehicular Circulation: Composite AutoTURN Paths

Fire Truck, Heavy Service Unit, 40-ft Cab & Trailer



Access:

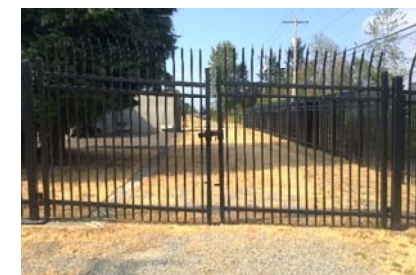
Vehicular Circulation Considerations

- Does not impact parking along 24th
- Does not limit future property development at Yankee Diner site
- Avoids excessive grading to accommodate large maintenance vehicles

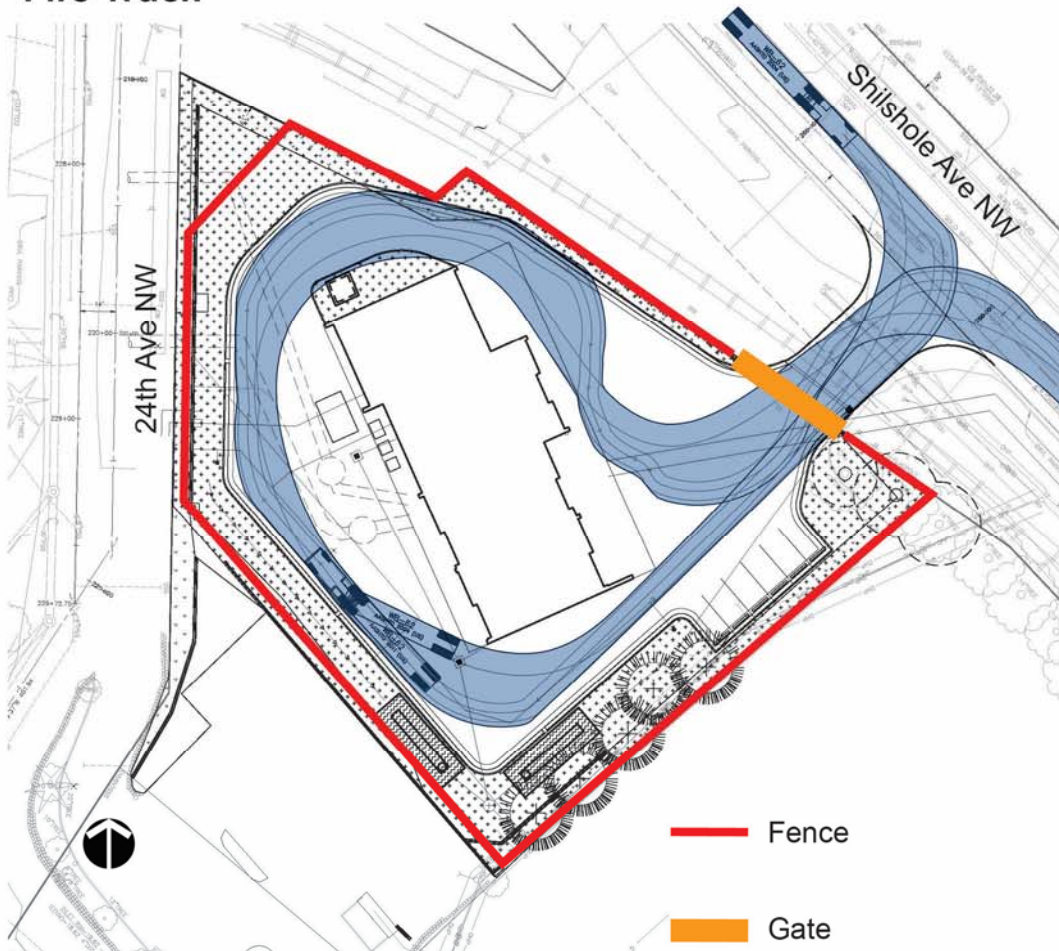
Security:

SPU Security Design Standards

- Fencing – 8' Height
- Gate
- Crime Prevention Through Environmental Design
- Cameras to be determined during design process
- Lighting to be developed during design process



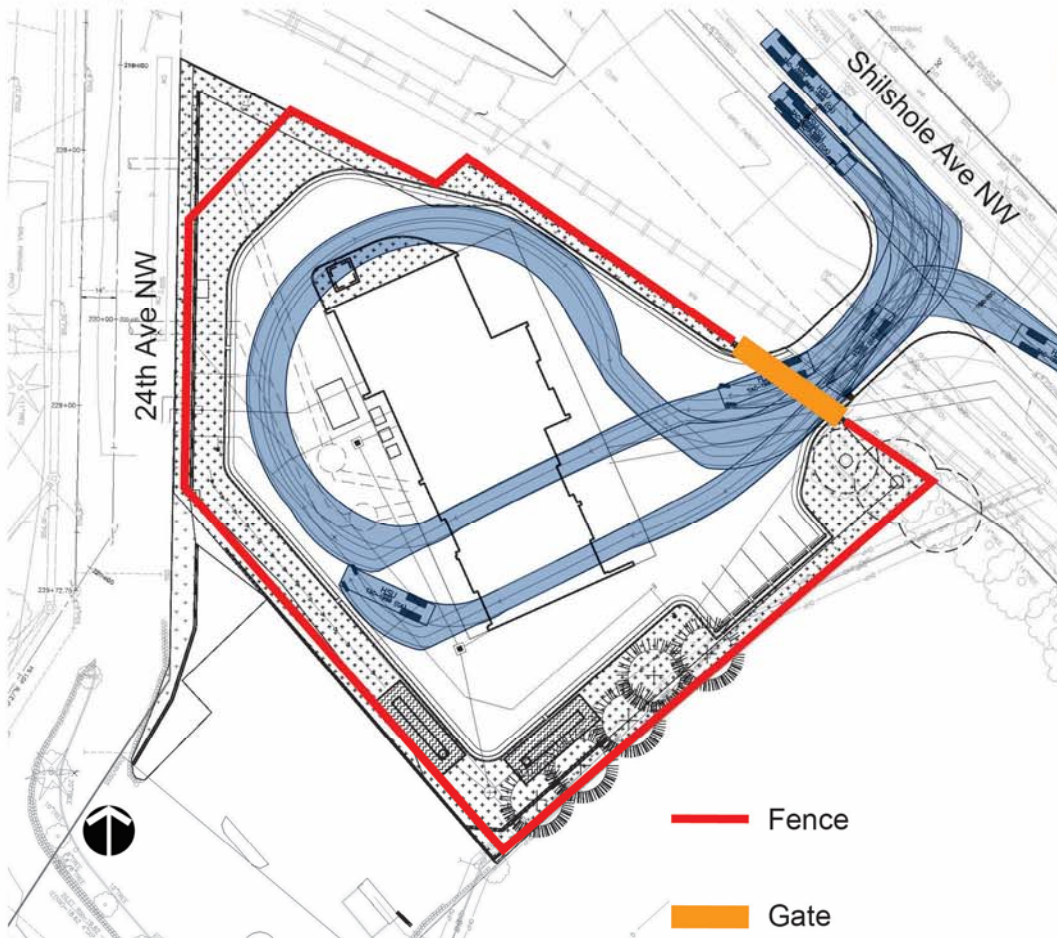
**Vehicular Circulation:
Fire Truck**



Trips Generated: Yearly (maintenance)



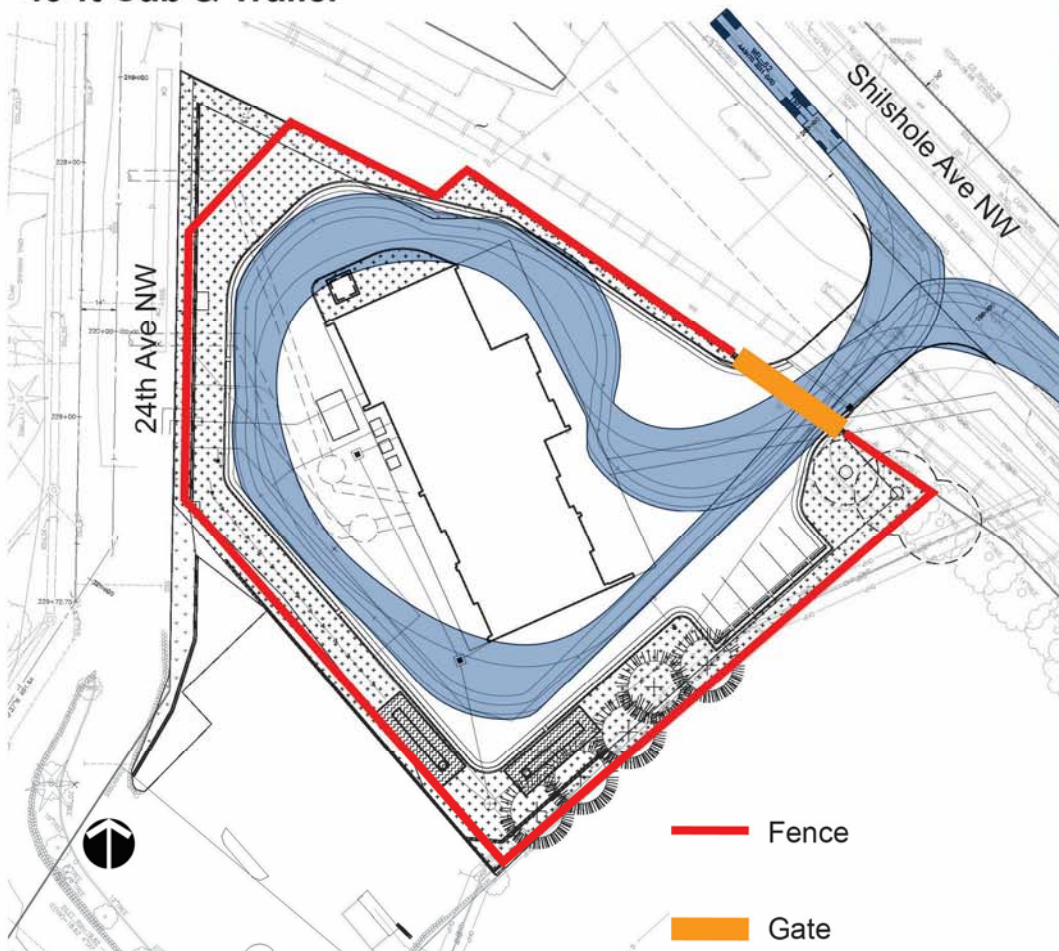
Vehicular Circulation: Heavy Service Unit



Trips Generated: Weekly



**Vehicular Circulation:
40-ft Cab & Trailer**



Trips Generated: Yearly



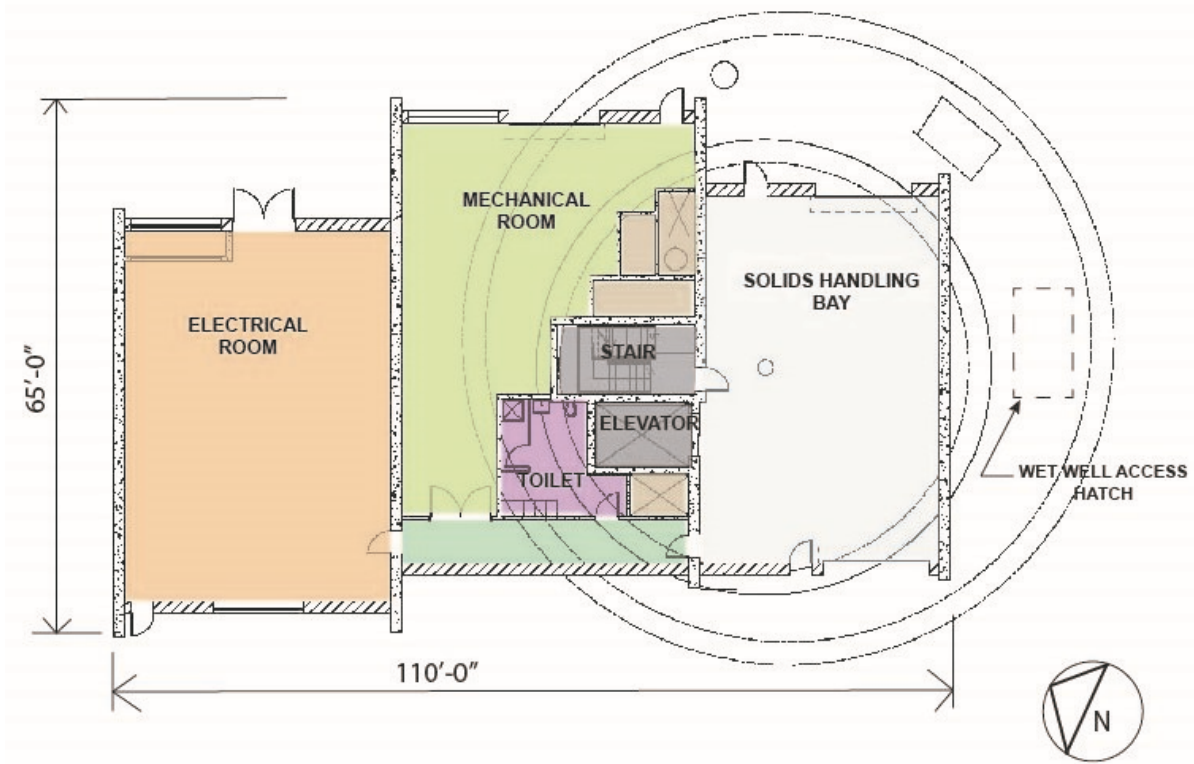
Architectural Concept:

Marine Industrial/Historic Ballard

- Industrial to the North and South
- Site is at transition to revitalized Old Ballard Ave
- Utilitarian
- Concrete structure with masonry infill
- Modernized /updated masonry and glass

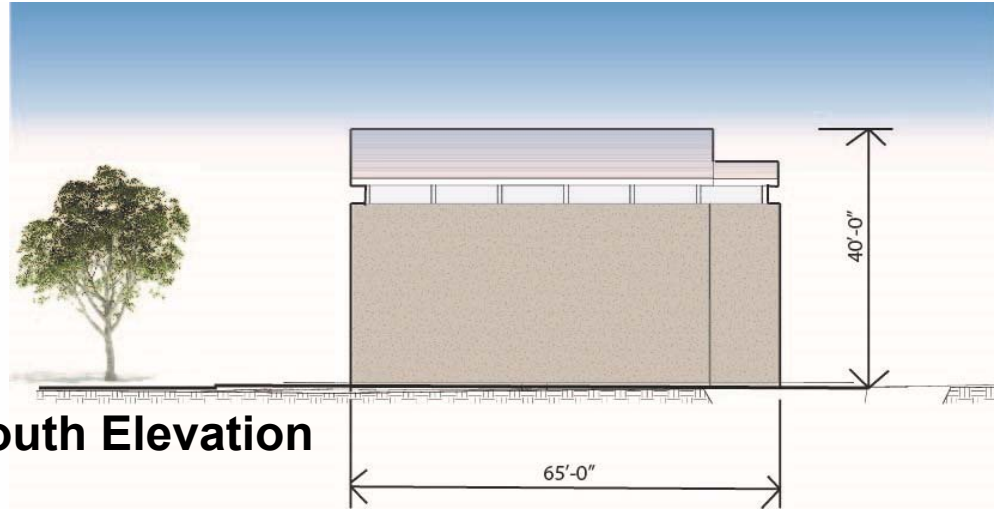




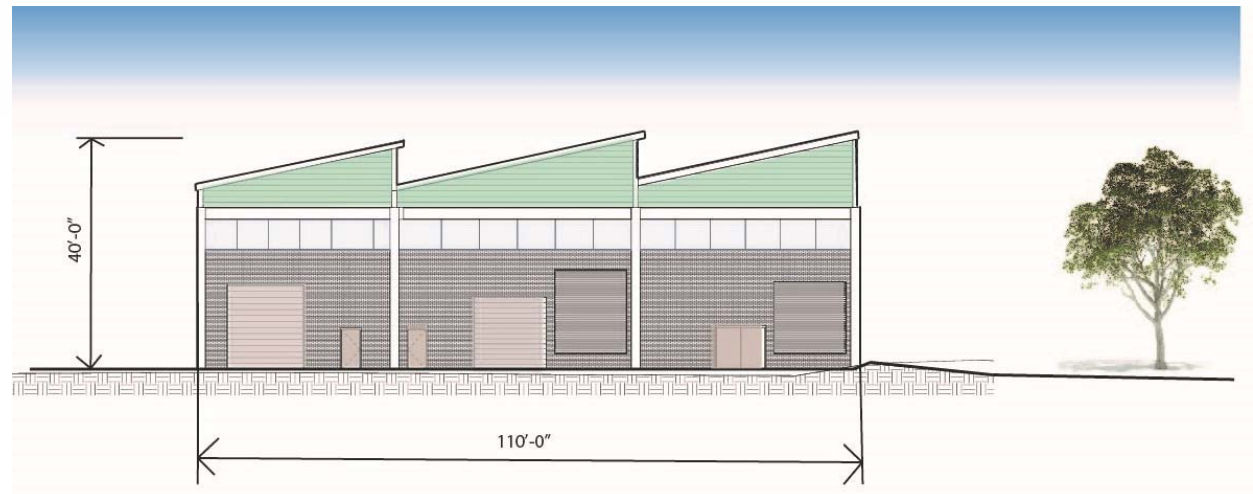


TEPS Building Program

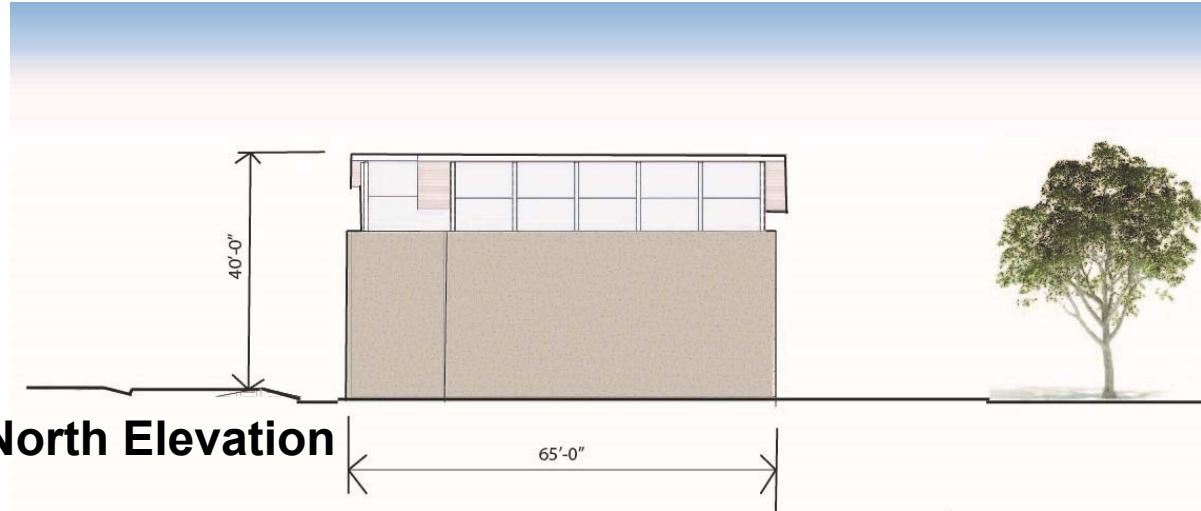
- Dewatering Pumps
- Solids Pumps
- Odor Control
- Electrical room
- HVAC
- Drive-Through
Access/Maintenance to Solids
Handling with Crane
- Staff Toilets, Lockers
- Operations/Control Room
- Elevator and Stair access to
Below Grade Spaces



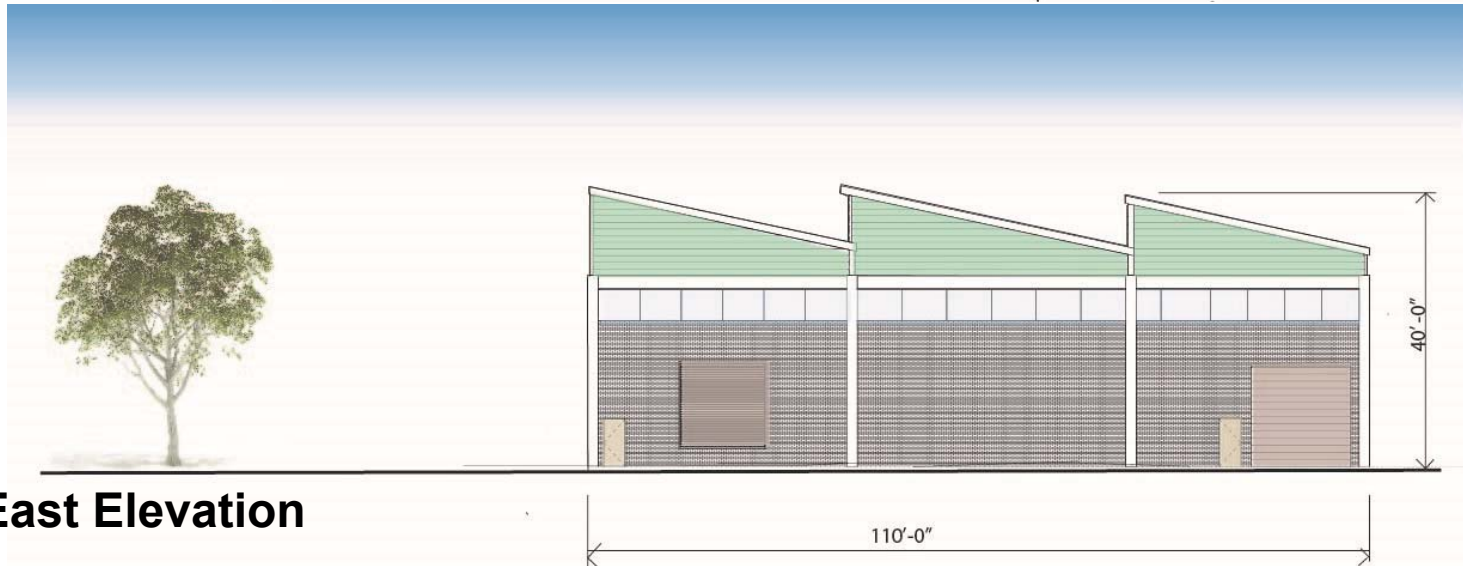
South Elevation



West Elevation



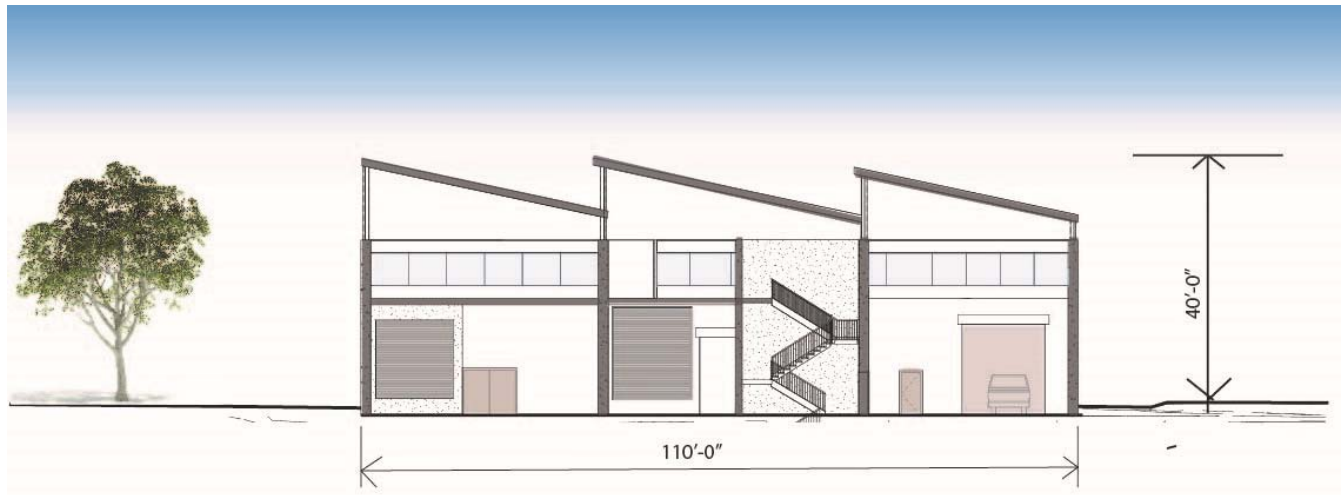
North Elevation



East Elevation



Cross Section



Longitudinal Section



Landscape Concept & Program Goals:

- Low maintenance planting
- Low planting for visibility into site from adjacent rights-of-way (CPTED principles)
- Replace trees removed 2:1 on-site and nearby
- Screen building and pavement from planned development



Possible location for public benefit to enhance access to shoreline street end



Property of Museum of History & Industry, Seattle





Dawn Redwood



Katsura



Vanessa Parrotia



Compact Barberry



Hellebore



Compact Mahonia



Dwarf Rugosa



Sarcococca



Epimedium



Geranium



Mt. Vernon Laurel



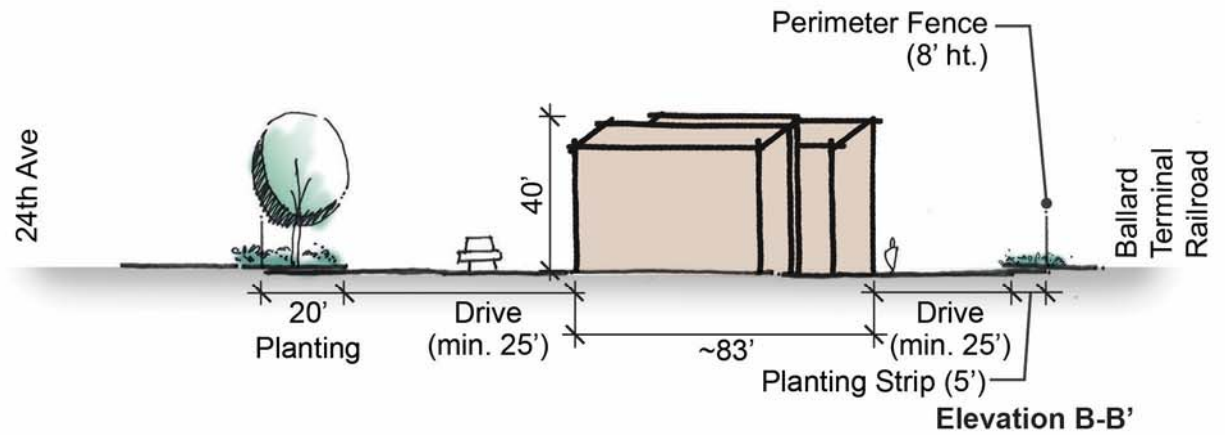
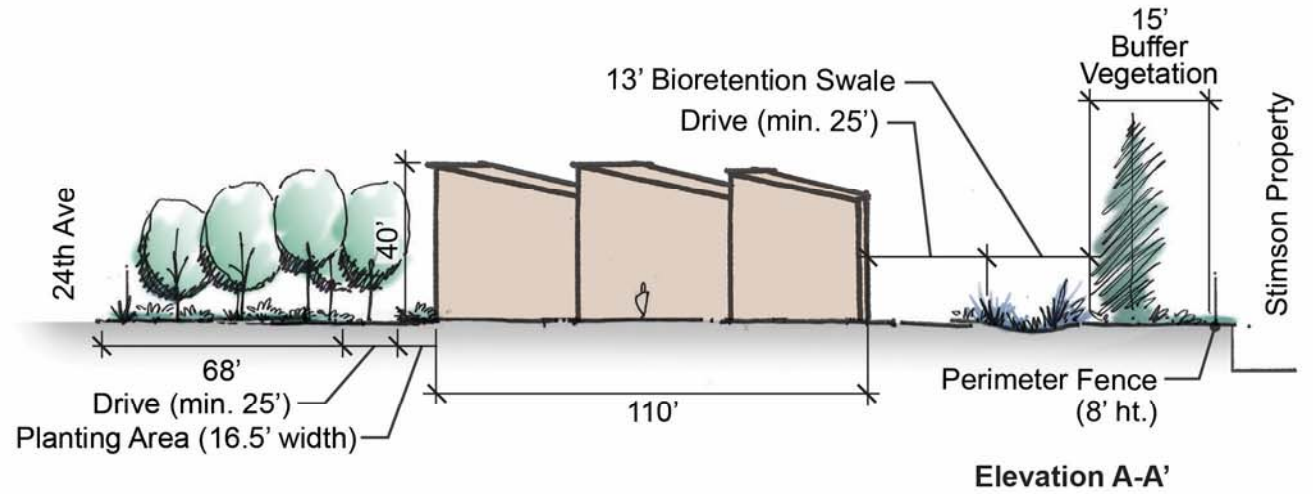
Dwarf Sarcococca



Evergreen Iris
(bioretention)



Rush
(Bioretention)





Site Fencing

- Schedule
 - Installed –December 2016, see photo to left
 - Duration – Duration of Ballard Remediation Construction (2017). The artwork is removable and may be used during the interim period between remediation and tunnel construction.
- Location – On fence along Shilshole Ave NW and along 24th Ave NW
- Examples below are the printed reproductions of artwork inspired by water (collection of artists):



Screened Fencing

- Schedule
 - Call for Artist – Q1/2 2017
 - Artist Selection – Q2/3 2017
 - Installation – Screened Fencing Construction 2018
- Theme – TBD, relevant to site
 - Location – Along Shilshole Ave NW and 24th Ave NW. Based on visibility and accessibility



Permanent Artwork

- Schedule: Artist will be selected by February 2017
- Theme: Reflective of Coast Salish historic and cultural connections to the Salmon Bay and Shilshole areas