

CSO Program Update and Status Report

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**METROPOLITAN WATER POLLUTION
ABATEMENT ADVISORY COMMITTEE**
General Meeting
August 27, 2014



Presentation Overview

Overview of CSO Program
CSO Project Status

- North Beach CSO
- South Magnolia CSO
- Murray CSO
- Barton GSI
- Rainier Valley
- Brandon-Michigan

Regional Combined Sewer Overflow CSO Locations

- 38 total CSOs
- 14 still require upgrade to meet state and federal standards
 - 4 in the Ship Canal area
 - 10 in the Elliott Bay Duwamish area



King County Combined Sewer Overflow (CSO) Locations

- | | |
|---|------------------------------|
| King County Uncontrolled CSO Area | CSO Treatment Plant/Facility |
| King County Uncontrolled CSO | Wastewater Treatment Plant |
| King County Controlled CSO | City of Seattle CSO |
| King County CSO Control Project under way | Park |



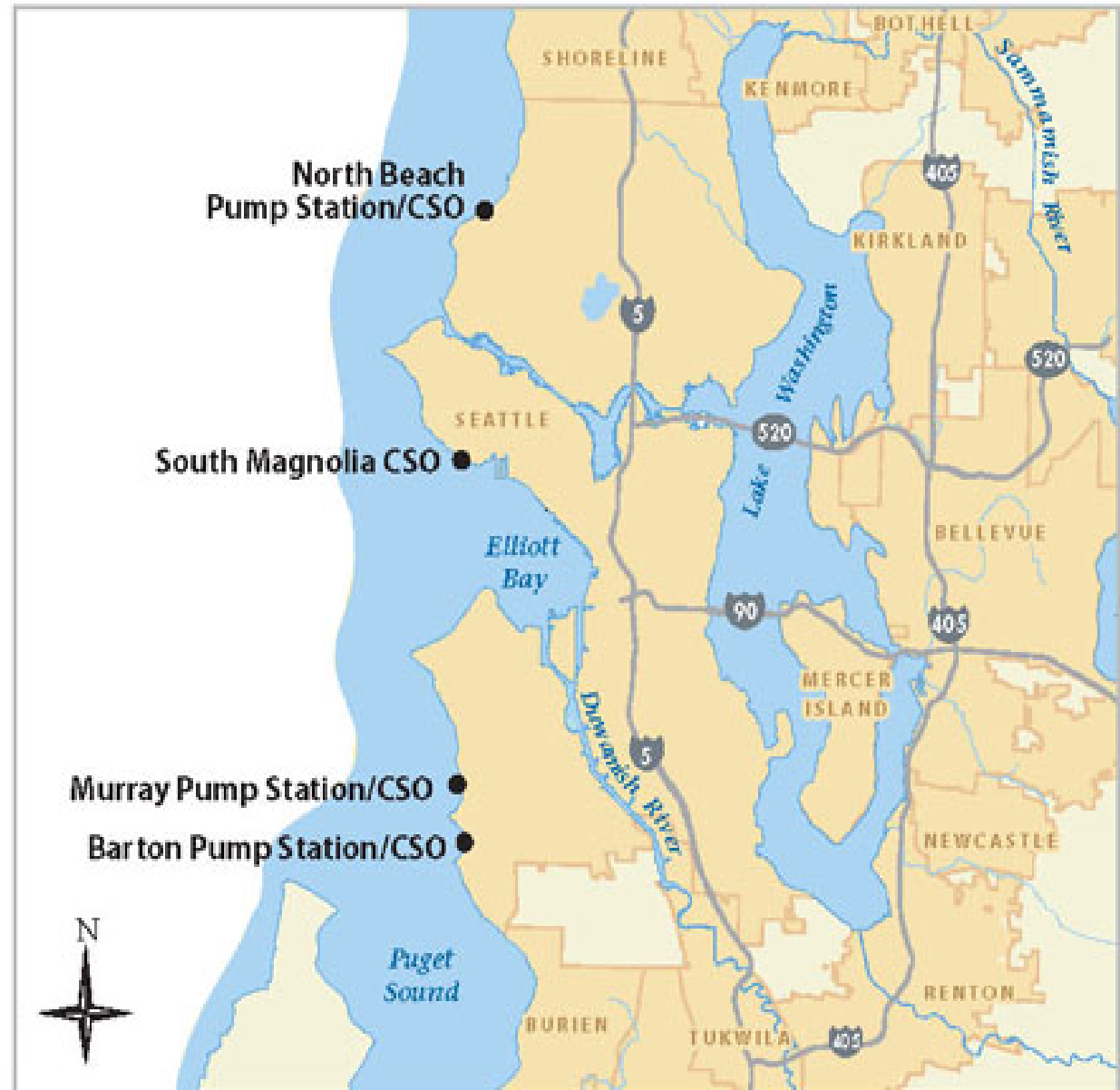
King County's Approved CSO Control Plan

- 9 projects to control 14 CSOs
 - 2 projects being implemented



Location of the Puget Sound Beach CSO Control Projects

- All Four Beach projects are in construction



Location of the Ballard Siphon Replacement Project

- The Siphon's primary purpose is to convey wastewater from north Seattle to West Point
- The Siphon also controls the Ballard CSO

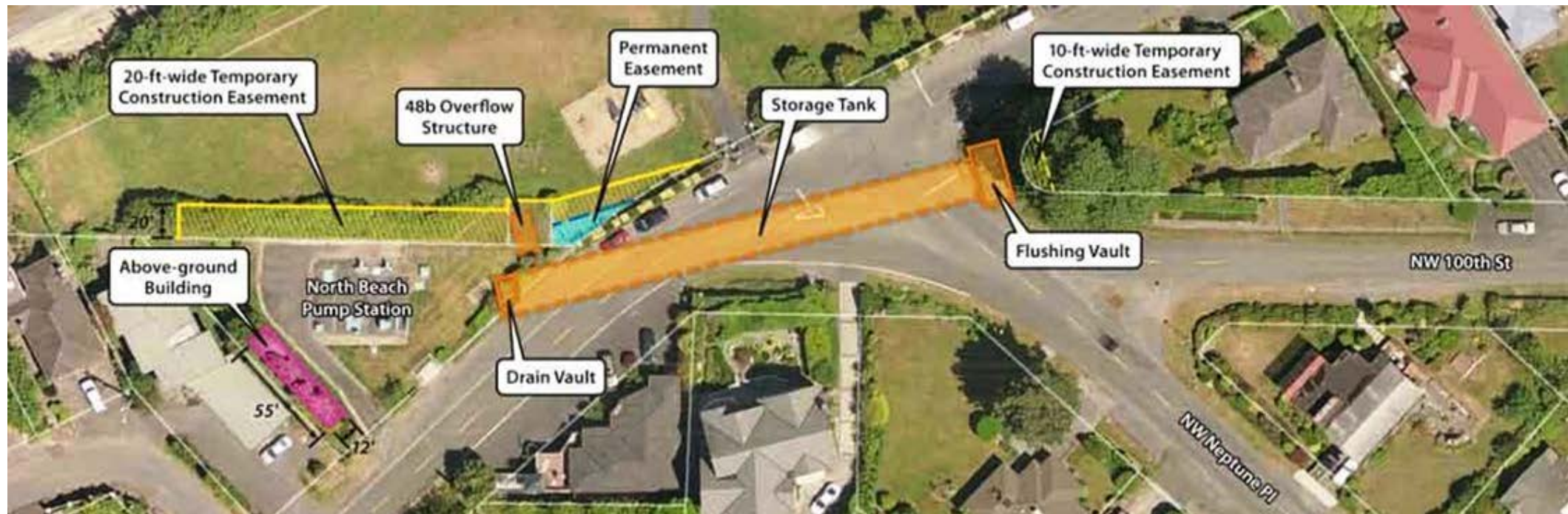


North Beach CSO Control Project



North Beach CSO Project

- Purpose – Improve water quality and complete commitments to CSO control
- Constructing 325 feet of pipe storage – 0.33 million gallons (MG)
- Construction 15% complete
- Substantial completion August 22, 2015
- Construction contract \$9.6m



North Beach CSO – Rerouting an existing sewer pipe



North Beach CSO – Excavation for mechanical building



North Beach CSO Rendering – Front View



North Beach CSO Rendering – Back View



South Magnolia CSO Project

- Purpose – Improve water quality and complete commitments to CSO control
- 1.8 MG storage tank, 2700 feet gravity pipeline
- Construction 18% complete on storage, 2% complete on HDD
- Substantial completion October 23, 2015
- Construction contracts: Storage \$12.5m, pipeline \$9.4m



South Magnolia Conveyance Alignment





South Magnolia Smith Cove conveyance site –
installing sheet piling; completed 24-in effluent pipe on Port property

Smith Cove conveyance site



32nd Avenue detour for
HDD entry location









Sample Artifacts



Murray CSO Project

- Purpose – Improve water quality and complete commitments to CSO control
- 1 MG storage tank
- Construction 22% complete
- Substantial completion August 31, 2015
- Construction contract \$20.8m





Placing concrete for a secant pile and drilling a second secant pile. 50.1 nail shoring is visible in the background



Drilling a starter casing for a secant pile



Move secant pile work



Preparing for dewatering well installation



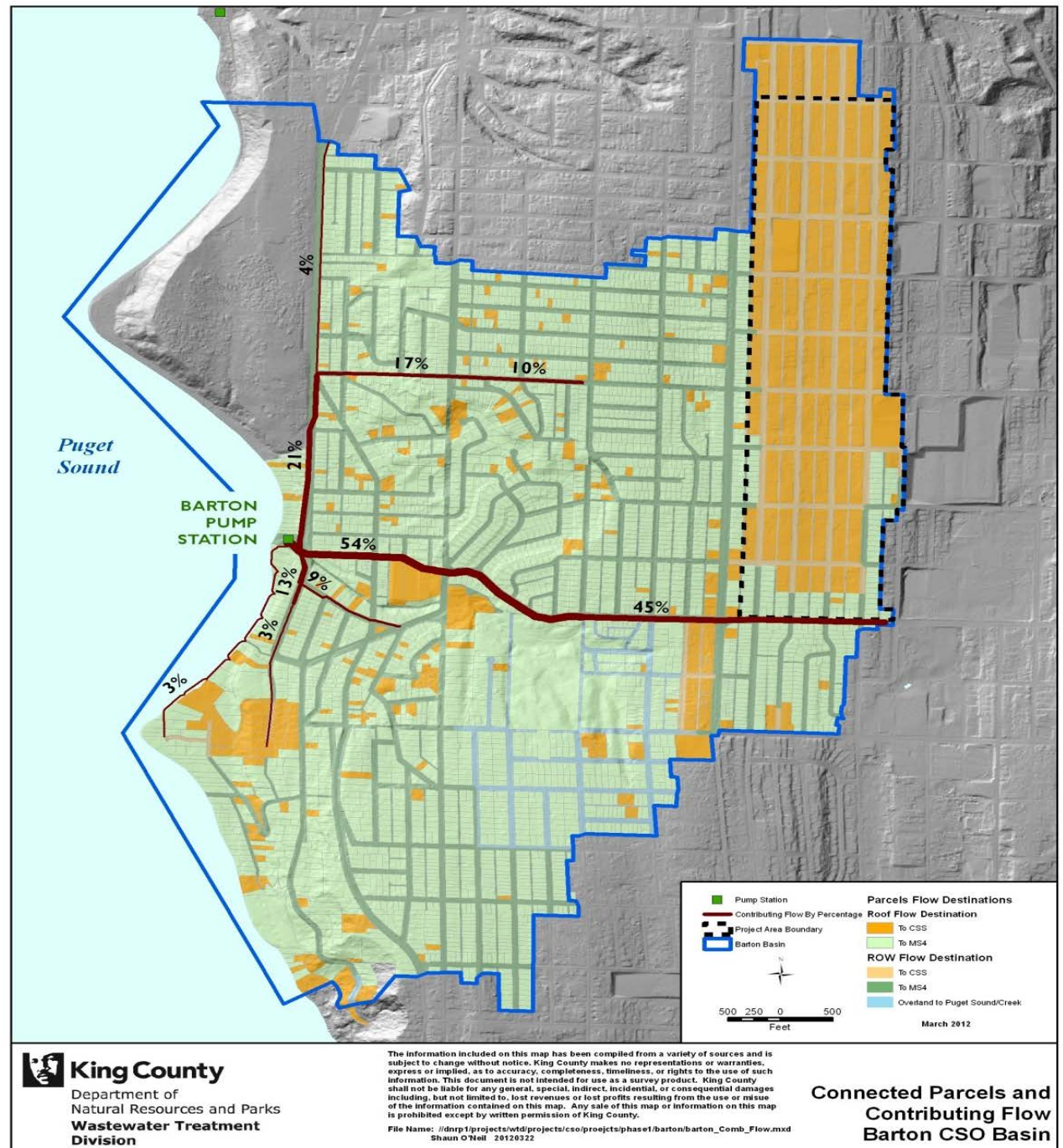
General site with Lowman Beach park in the distance



View from over the CSO storage site NW toward Lowman Beach Park

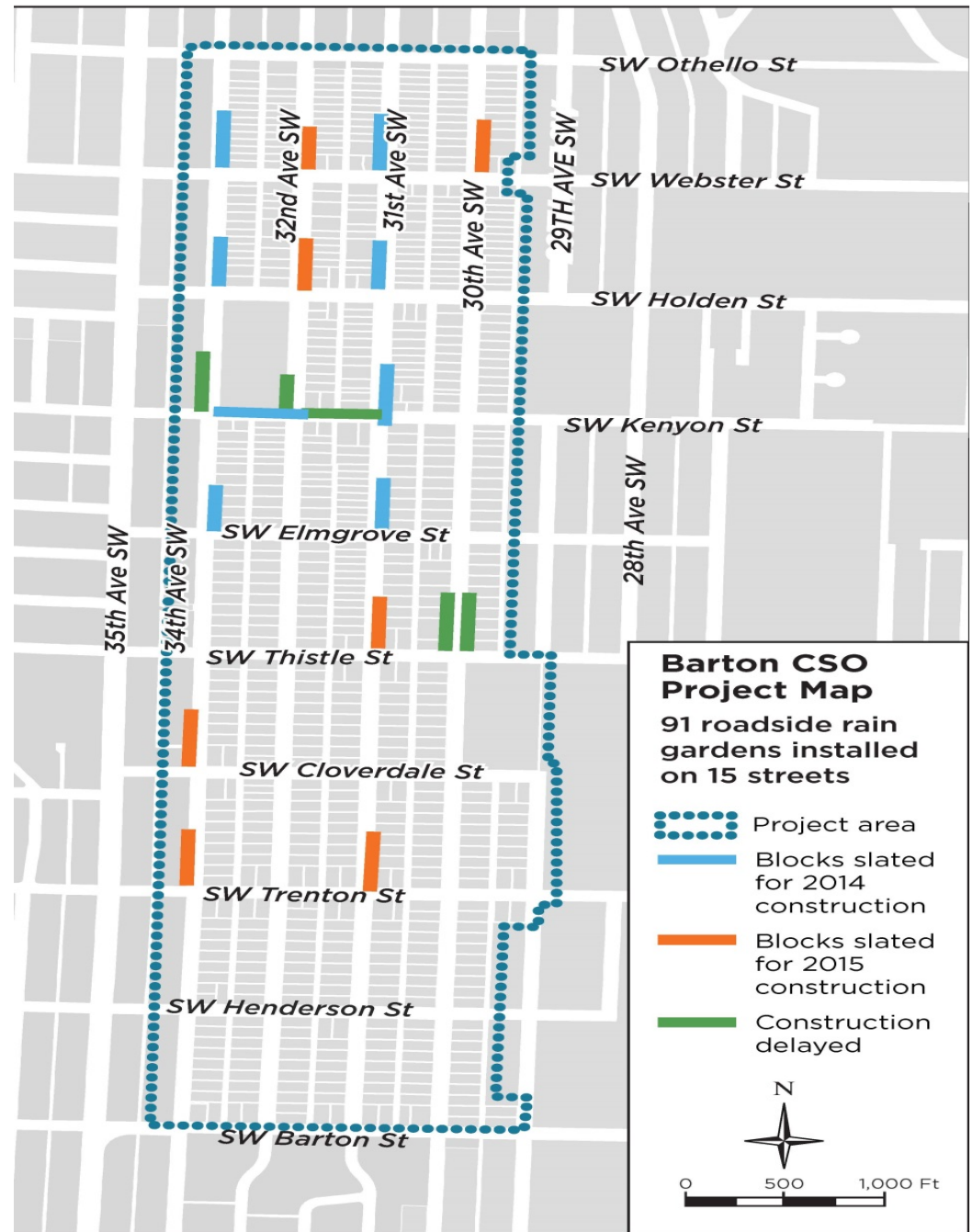
Barton CSO GSI Project

- Barton basin 1,112 acres
- Five sub basins
- Project is located in the Sunrise Heights & Westwood Neighborhoods in West Seattle – 151 acres
- 45% combined sewer system flows come from subbasin 416



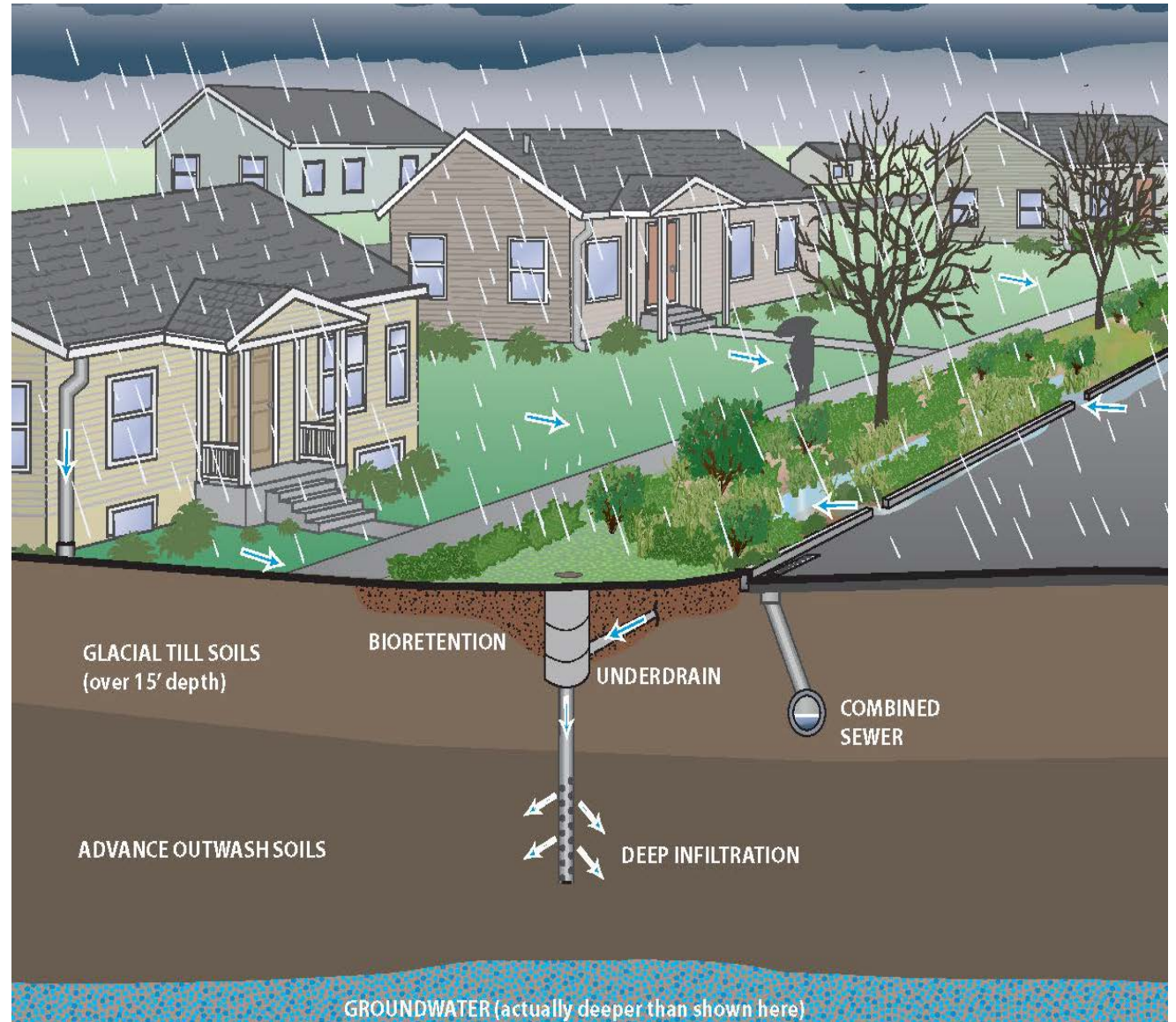
Project Area

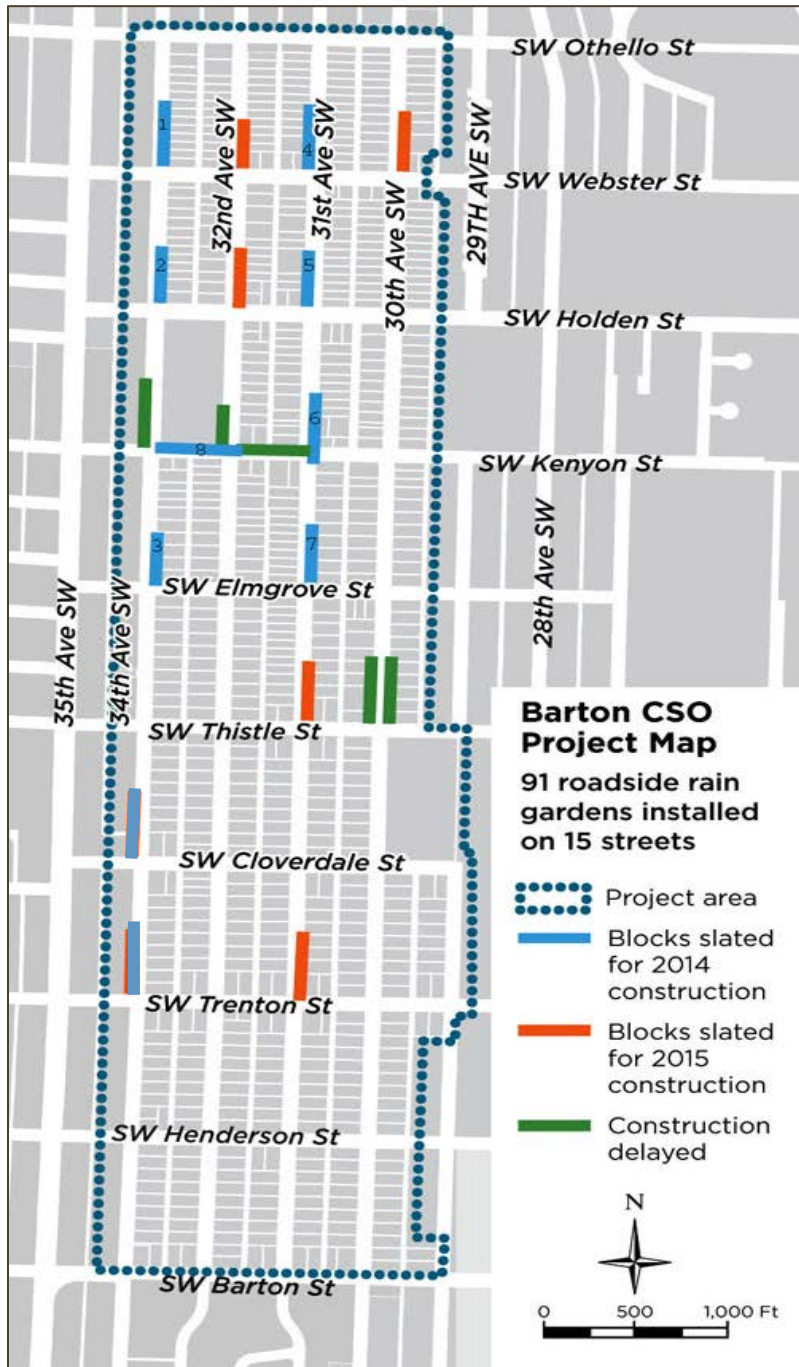
- Purpose – Improve water quality and complete commitments to CSO control
- Removes 5.88 MG/year of flow from the combined sewer system
- Construction 72% complete
- Substantial completion November 20, 2015 - ahead of schedule
- Construction contract \$5.5m



Green Stormwater Infrastructure (GSI) Design Elements

- Bioretention swales
- Under drains
- Underground Injection Control (UIC) wells





Construction over 2 years

- To ensure plants get established
- To avoid construction during rainy season To reduce community impacts
- With the support of the community we were able to complete some of the year 2 work this year

Construction Element	Planned	Actual
Well construction	Year 1: 8 Year 2: 7	Year 1: all 15
Utility relocations and new water services	Year 1: 8 Year 2: 7	Year 1: all 15
Roadside Rain Gardens	Year 1: 8 Year 2: 7	Year 1: 10 Year 2: 5

**34th & Trenton
Swale Construction
7/10/14**



Before and After





Looking down into a UIC well manhole





Landscaped swales
during plant
establishment
period

Brandon-Michigan CSO

- “Control of Brandon and South Michigan Street CSO Outfalls in accordance with WAC 173-245-020(22).”
- WAC defines control as “no more than one event per year over a twenty year average” or treatment that is at least equal to primary treatment standards.
- Achieve all consent decree requirements.

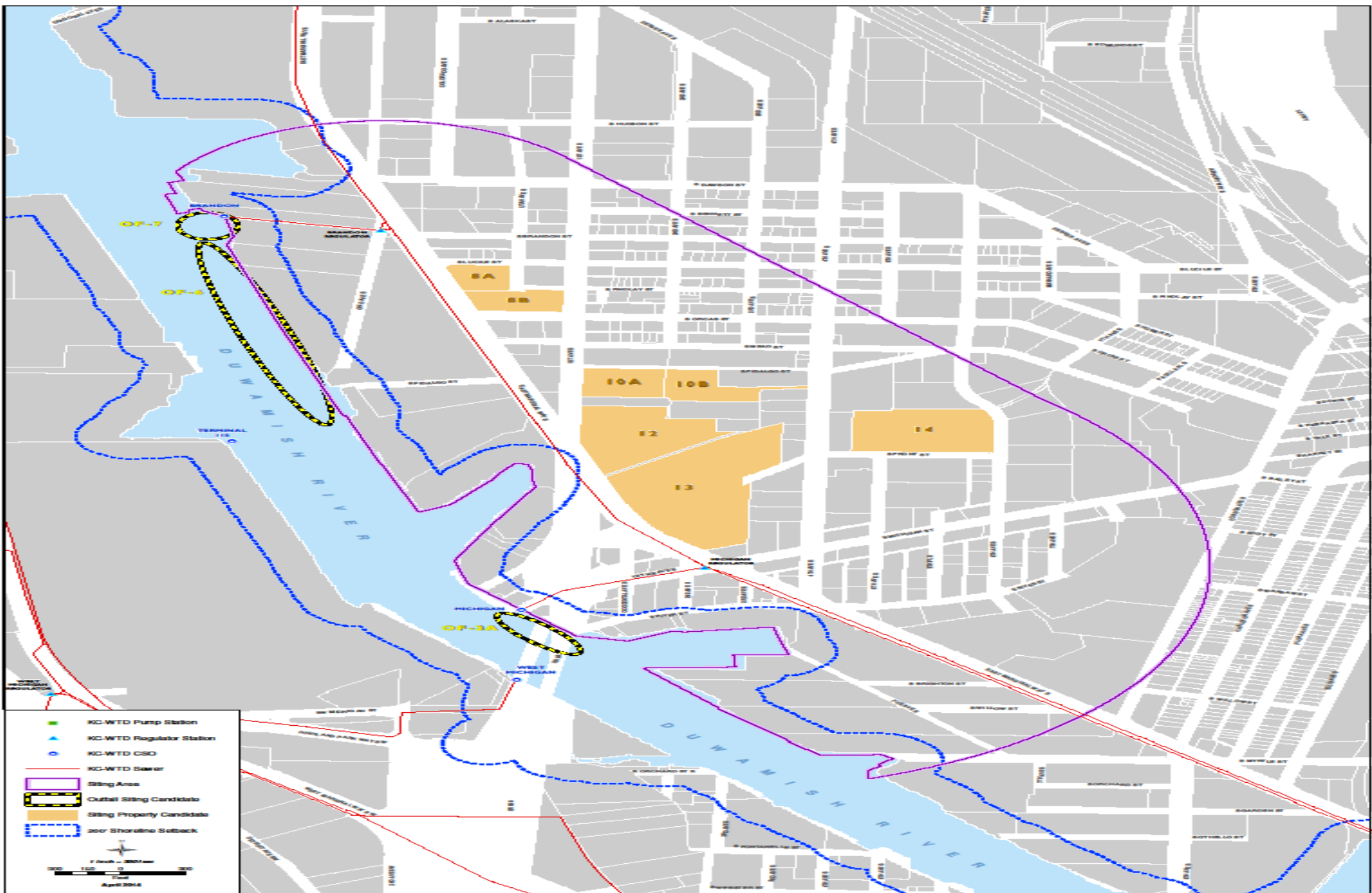
Brandon-Michigan CSO

Project defined as:

- CSO Treatment and Conveyance – 66 MGD peak
- High rate clarification treatment

Compliance Schedule

- Submission of Facilities Plan by December 31, 2015
- Completion of Bidding by December 31, 2017
- Construction Completion by December 31, 2022
- Achievement of Performance Standard by December 31, 2024 or two full wet seasons.

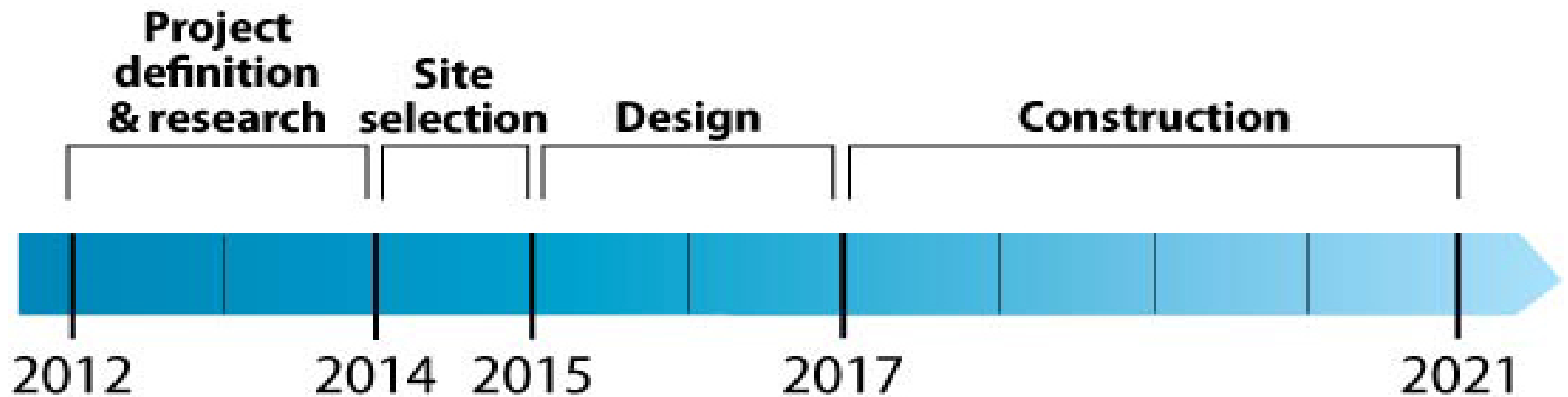


Brandon-Michigan CSO Schedule

	Consent Decree Milestone
Facility Plan*	12/31/2015
Completion of Bidding	12/31/2017
Construction Completion	12/31/2022
Achievement of Performance Standard	12/31/2024

*Develop and select design alternatives Sept-Nov 2014

PROJECT TIMELINE



Cost Control

- Scope and cost containment critical to project
- Direction to re-evaluate alternatives identified during strategic planning and carry forward for further evaluation
- Project schedule allows for re-evaluation
- Ensure best project is moved forward with appropriate cost control and cost reduction

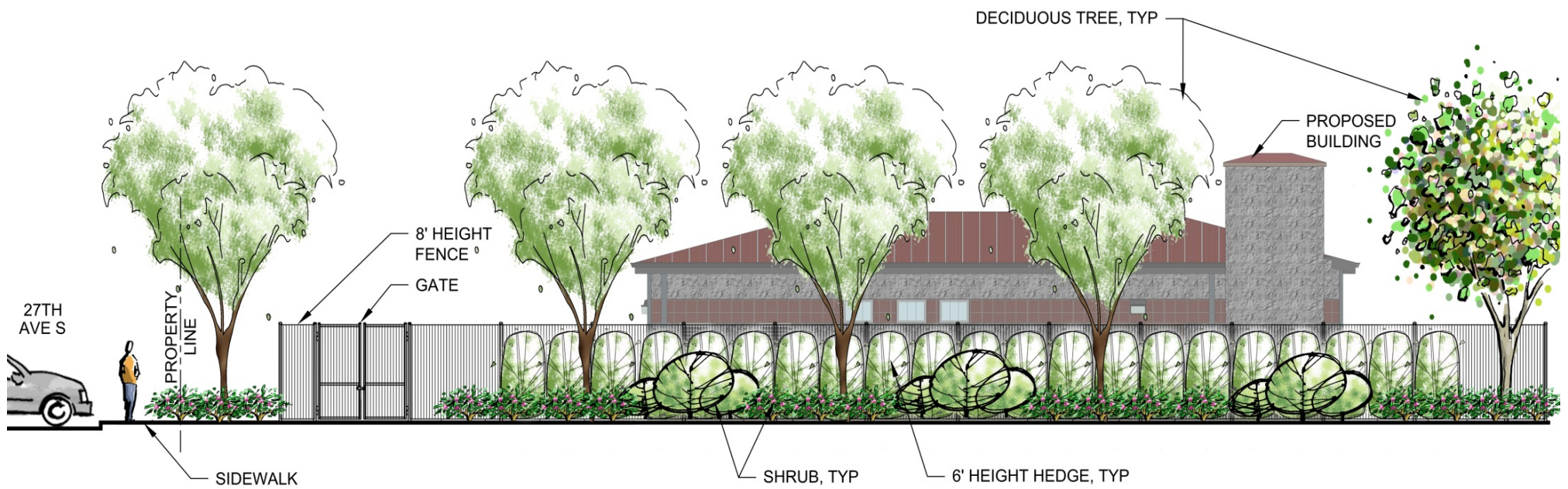
Rainier Valley Wet Weather Storage



- 0.34mg offline storage tank
- Conveyance from Bayview North overflow structure to Bayview Tunnel
- Rehabilitate an existing 48-in brick lined sewer
- \$17M construction
- In final design now
 - Construction start 3rd quarter 2015
 - Construction complete end of 2017

Rainier Valley Wet Weather Storage - Rendering





RAINIER VALLEY WET WEATHER STORAGE: ELEVATION FROM S HANFORD ST SCALE: 1-1/2" = 1'-0"



Questions?

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