# Ballard Sewage Overflow Prevention
## Protecting Salmon Bay

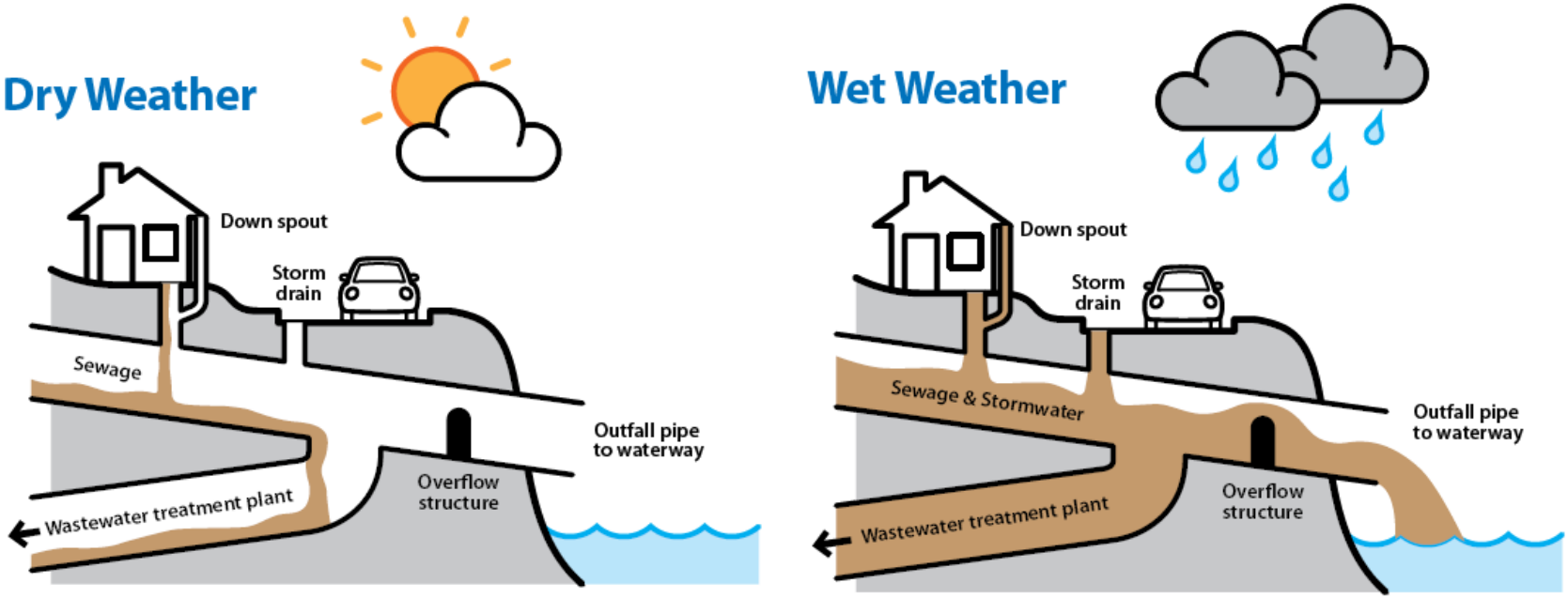
Community Open House

June 5, 2013

# Tonight's Agenda

- Presentation
  - Overview of Seattle Public Utilities Sewer Overflow Prevention Program
  - Strategies for Reducing CSOs
  - Ballard Basin Opportunities
  - Project Schedule and Public Involvement Opportunities
  - Most Promising Project Blocks
- Q&A
- Open House
- Block Area Break-Out Sessions

# Combined Sewer Overflows (CSO)



# SPU's CSO System

- 87 outfalls
- 355 overflows in 2012
- 154 million gallons of raw sewage and polluted runoff into Seattle lakes, creeks, Salmon Bay and Puget Sound

# CSOs in Ballard

- 88 overflows into Salmon Bay in 2012
- 54 million gallons of untreated stormwater and sewage

# 3 Steps to Reducing CSOs

1.

Fix it First

2.

Keep Stormwater Out

3.

Store What's Left

# Keep Stormwater Out: RainWise (Residential)

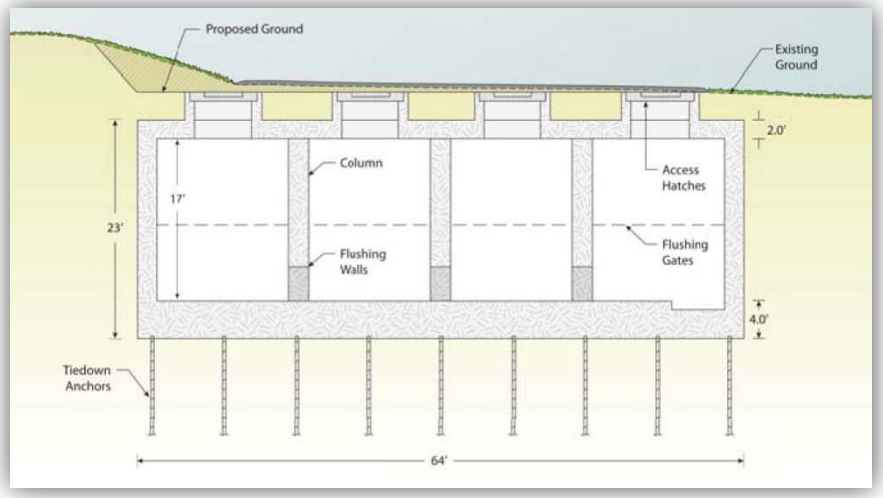
# Keep Stormwater Out: Roadside Rain Gardens

30th Ave NW – December 2010

30th Ave NW – November 2011

30th Ave NW – June 2012

# Store What's Left

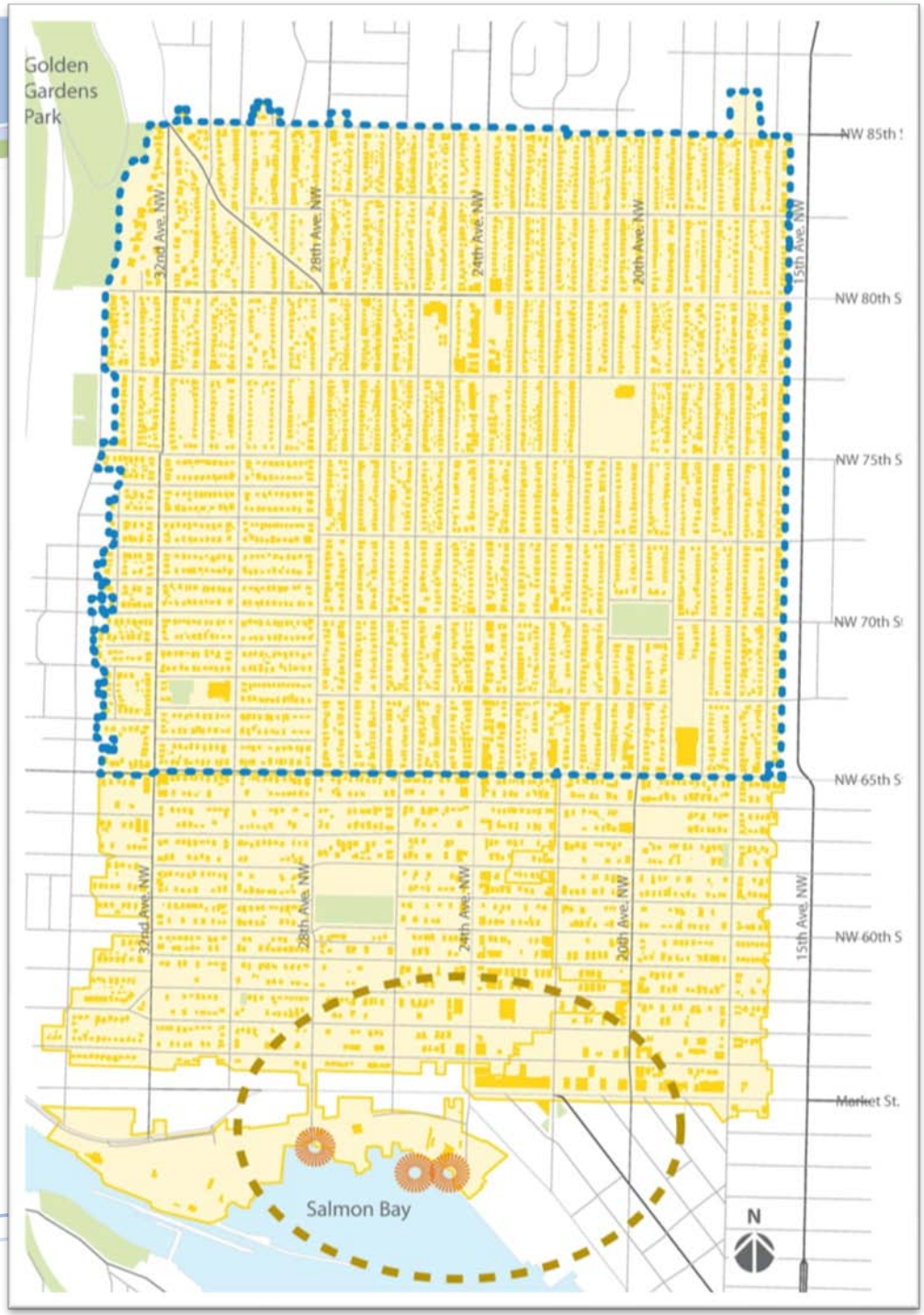



Underground Storage: A look underground

During Construction

Storage Tunnel

# Project Area



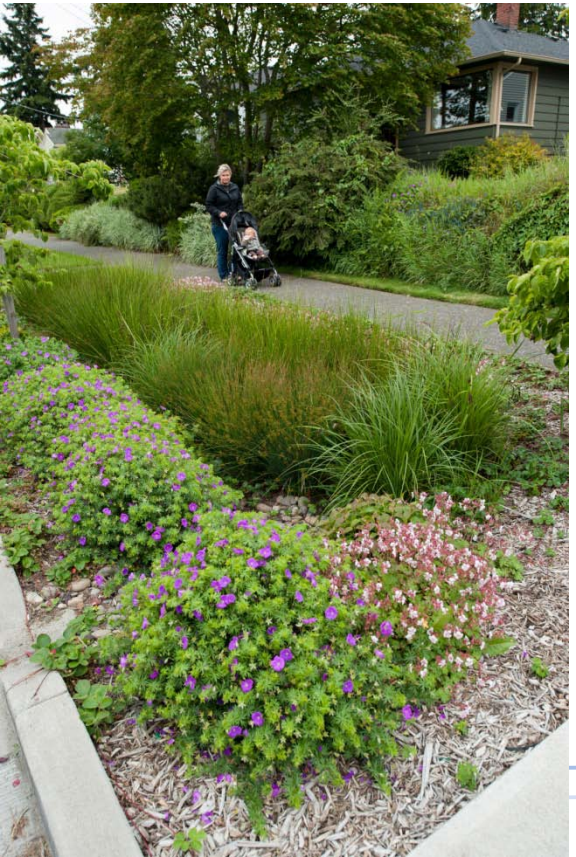
# The Ballard Basin

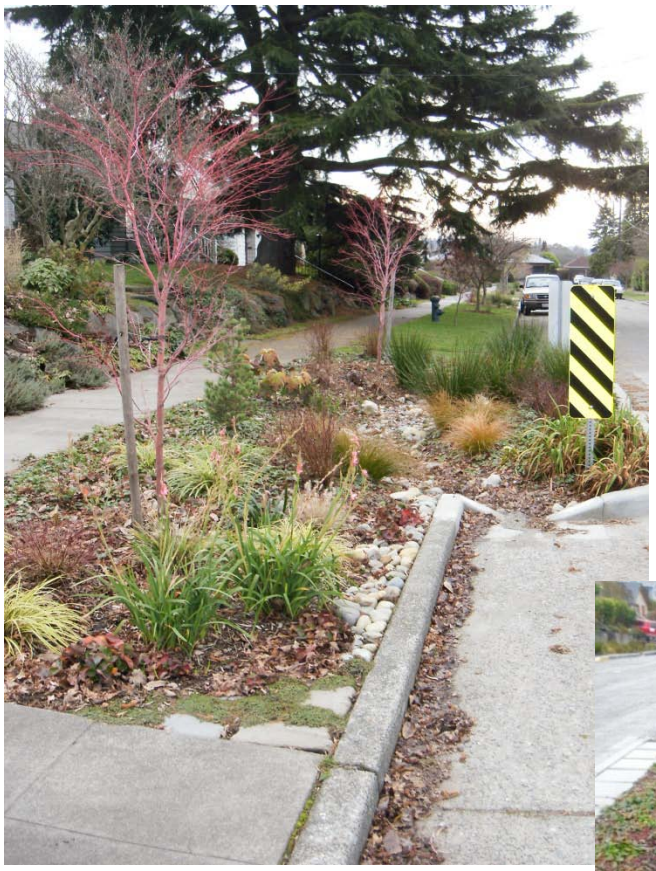
# Green Stormwater Infrastructure

Tries to make this…

…function more like this.

# Green Infrastructure Practices – ROW





# 2010 Pilot Project Lessons Learned

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**Ballard's new green infrastructure has some neighbors seeing red**

Submitted by Michael Hartborne, KOMO Communities Reporter
Tuesday, January 25th, 02:13pm

Share:

When Seattle Public Utilities began installing 10 blocks of rain gardens in Ballard in June, the typically green neighborhood – residents boast of having "Undriver Licenses" and are working to build a solar power-generating park – had visions of less storm water runoff in the streets and a healthier Puget Sound.

# Lessons Learned

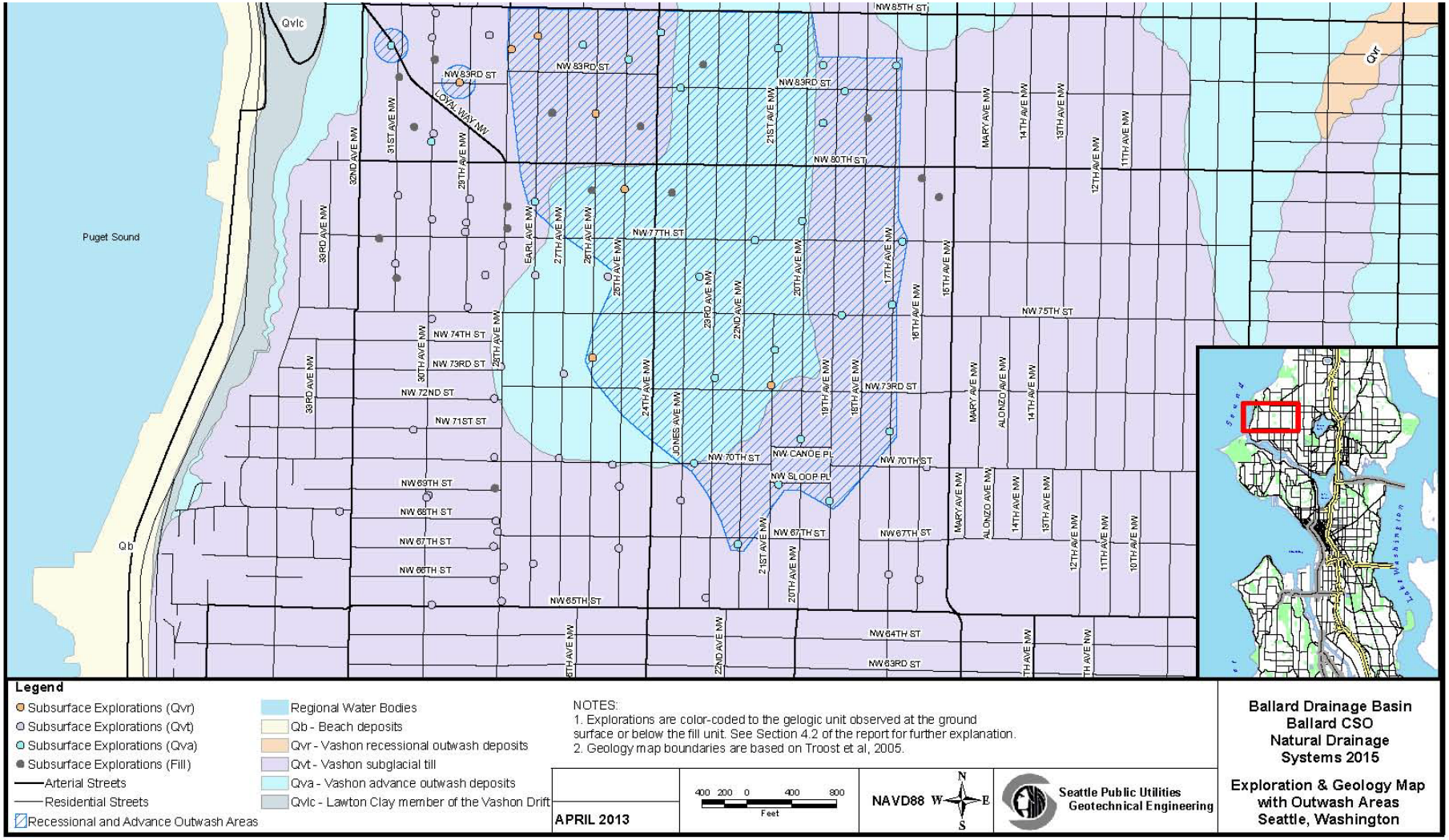
| Learned | Looking Forward |
| --- | --- |
| **TAKE YOUR TIME** | Allow sufficient time for project scoping, meaningful community engagement, site selection, design, construction, and monitoring.<br><br>Build in time to respond to community input and technical analysis. |
| **DO YOUR HOMEWORK** | Conduct wet-weather soil testing and groundwater monitoring a full year in advance and validate test results with outside geotechnical experts.<br><br>Conduct additional tests to assess soil conditions and measure how well water absorbs in various places. |
| **LISTEN TO THE COMMUNITY** | Gather information from residents about what they know about soil conditions, drainage, and groundwater in their neighborhood.<br><br>Engage residents early in siting and design discussions.<br><br>Identify locations and designs that provide opportunities to improve community safety and livability |

[redacted]

# Project Schedule and Public Involvement Opportunities

- Two-year process
- Ongoing two-way communication
- Regular check points
- Choices about how to be involved

# Soil testing occurred in 2009, 2010, and 2012 – better defining outwash soil area boundary




**Legend**

- Subsurface Explorations (Qvr)
- Subsurface Explorations (Qvt)
- Subsurface Explorations (Qva)
- Subsurface Explorations (Fill)
- Arterial Streets
- Residential Streets
- Recessional and Advance Outwash Areas
- Regional Water Bodies
- Qb - Beach deposits
- Qvr - Vashon recessional outwash deposits
- Qvt - Vashon subglacial till
- Qva - Vashon advance outwash deposits
- Qvlc - Lawton Clay member of the Vashon Drift

NOTES:
1. Explorations are color-coded to the gelogic unit observed at the ground surface or below the fill unit. See Section 4.2 of the report for further explanation.
2. Geology map boundaries are based on Troost et al, 2005.

APRIL 2013

400 200 0 400 800
Feet

NAVD88

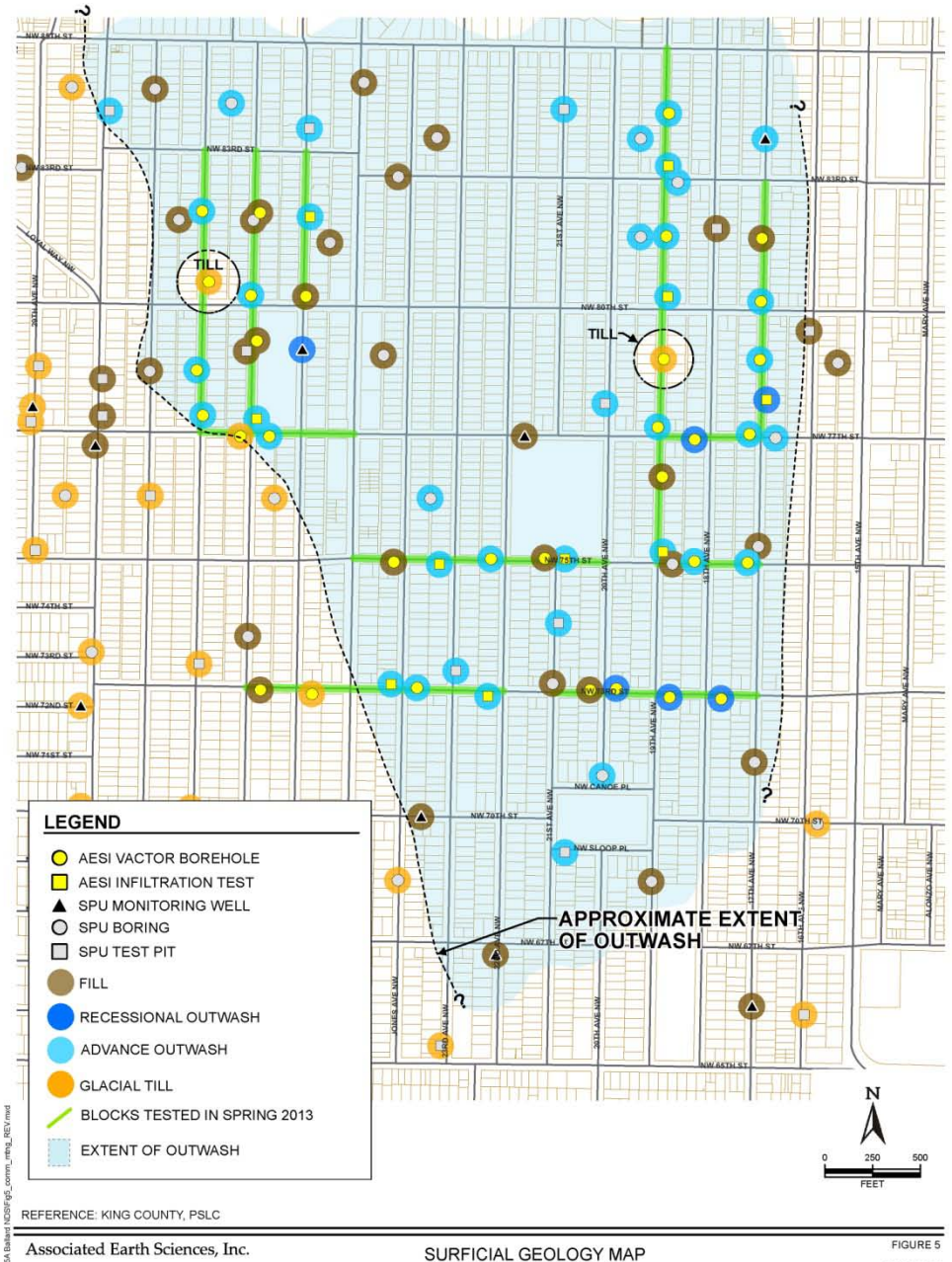
Seattle Public Utilities
Geotechnical Engineering

Ballard Drainage Basin
Ballard CSO
Natural Drainage
Systems 2015

Exploration & Geology Map
with Outwash Areas
Seattle, Washington

# Soil Testing Results

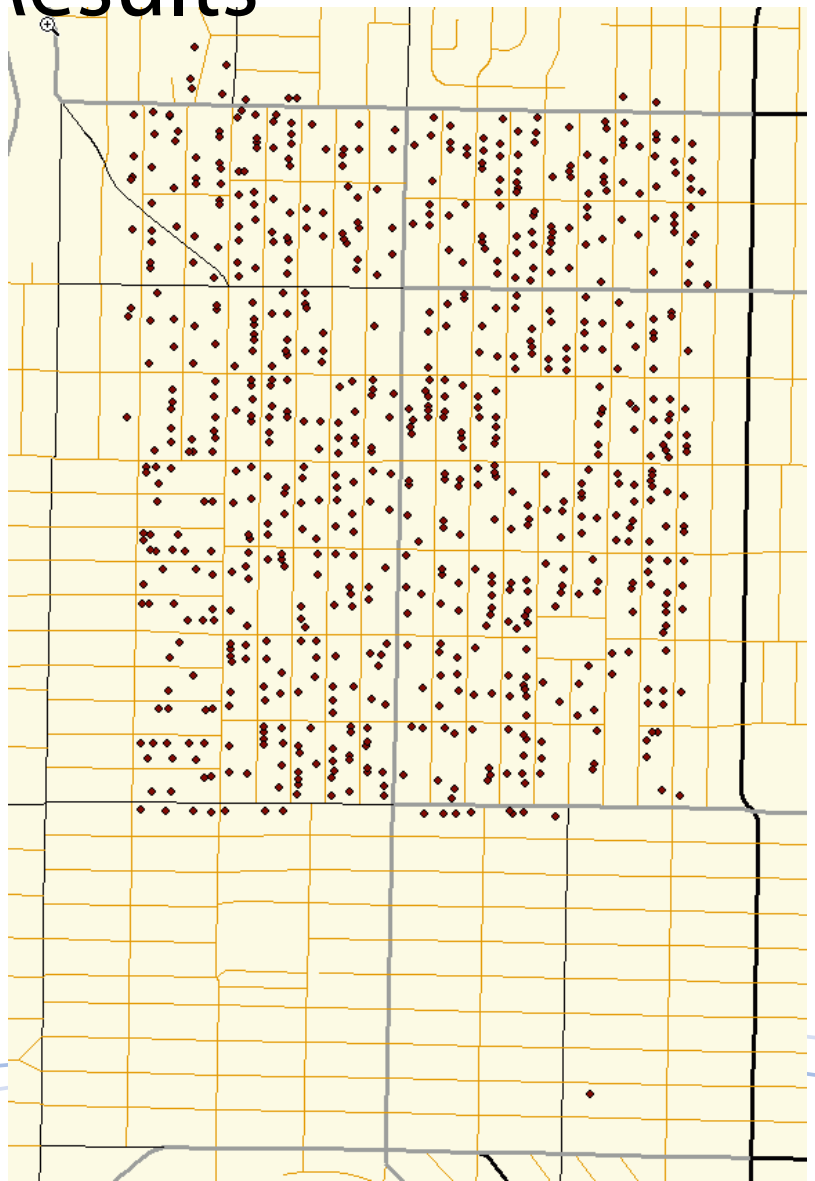
- Additional tests in spring 2013
- Helped SPU develop better understanding of soil conditions
- Focused on finding area where outwash soils were most likely



# Survey Results

Provided information on:

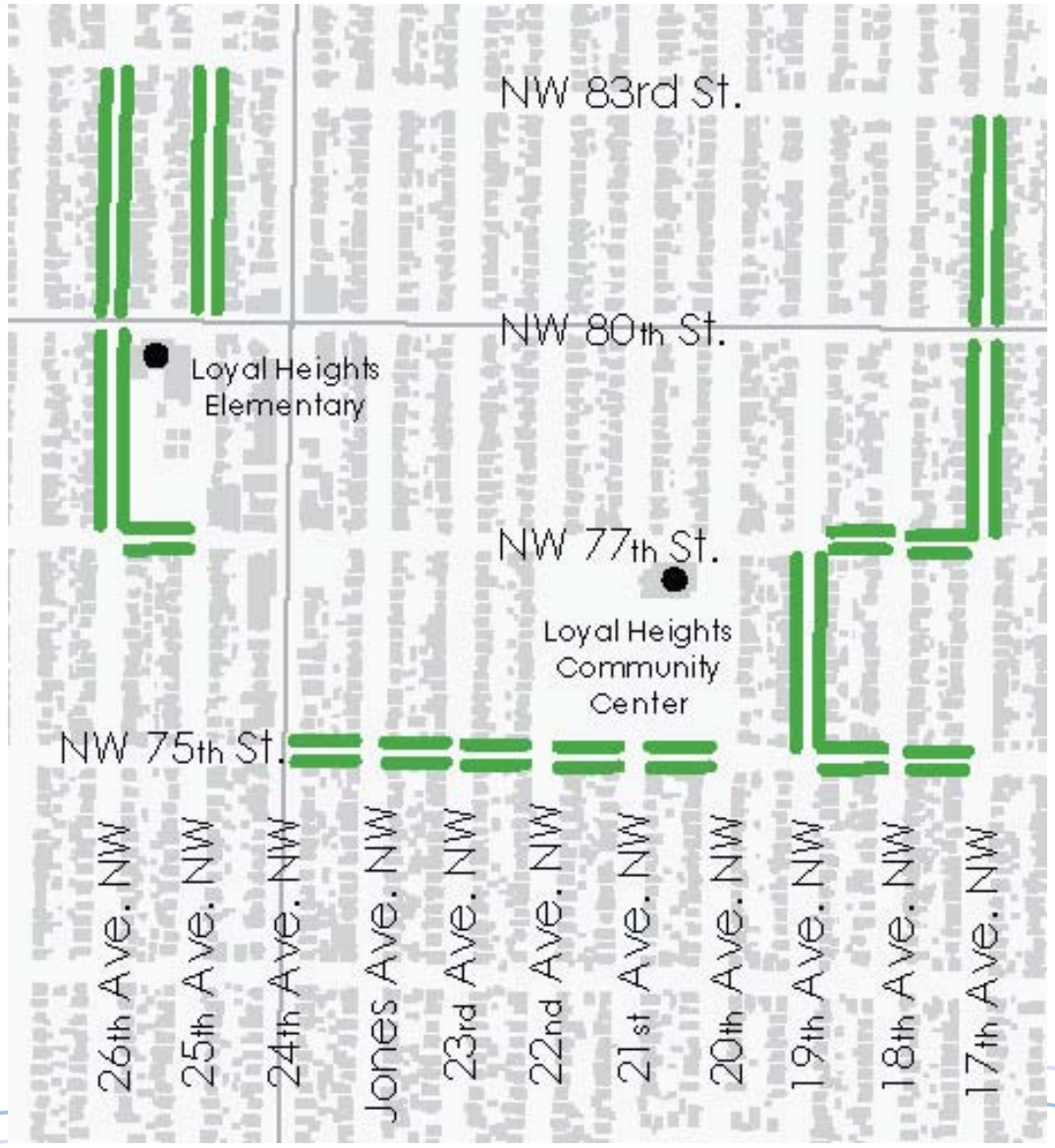
- Groundwater and surface water issues
- Presence of natural springs
- Support/non-support for natural drainage projects
- Neighborhood improvements



# Most Promising Project Blocks

**Variables Considered:**

- Results of soil testing
- Information from community survey
- Street slope
- Presence of mature trees and plantings
- Planting strip width
- On-street parking use
- Existing biking or walking routes
- Need for slowing traffic
- Safety of intersections



# Next Steps

- Now-September 2013:
  - Gather block-level input on potential design approaches; answer questions
  - Develop early concept designs for most promising blocks
- September 2013: Block Walks
  - Present concept designs and gather input
  - Talk about design considerations on each block
- October – December 2013: Recommended Blocks
  - Present design changes based on input
  - Talk about particular block needs and wants
- January 2014: Identify project blocks; continue design work

# For More Details…

**Visit:**

www.seattle.gov/cso/ballard

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