



CSO Projects

33-2 Tank Brownfield Strategies

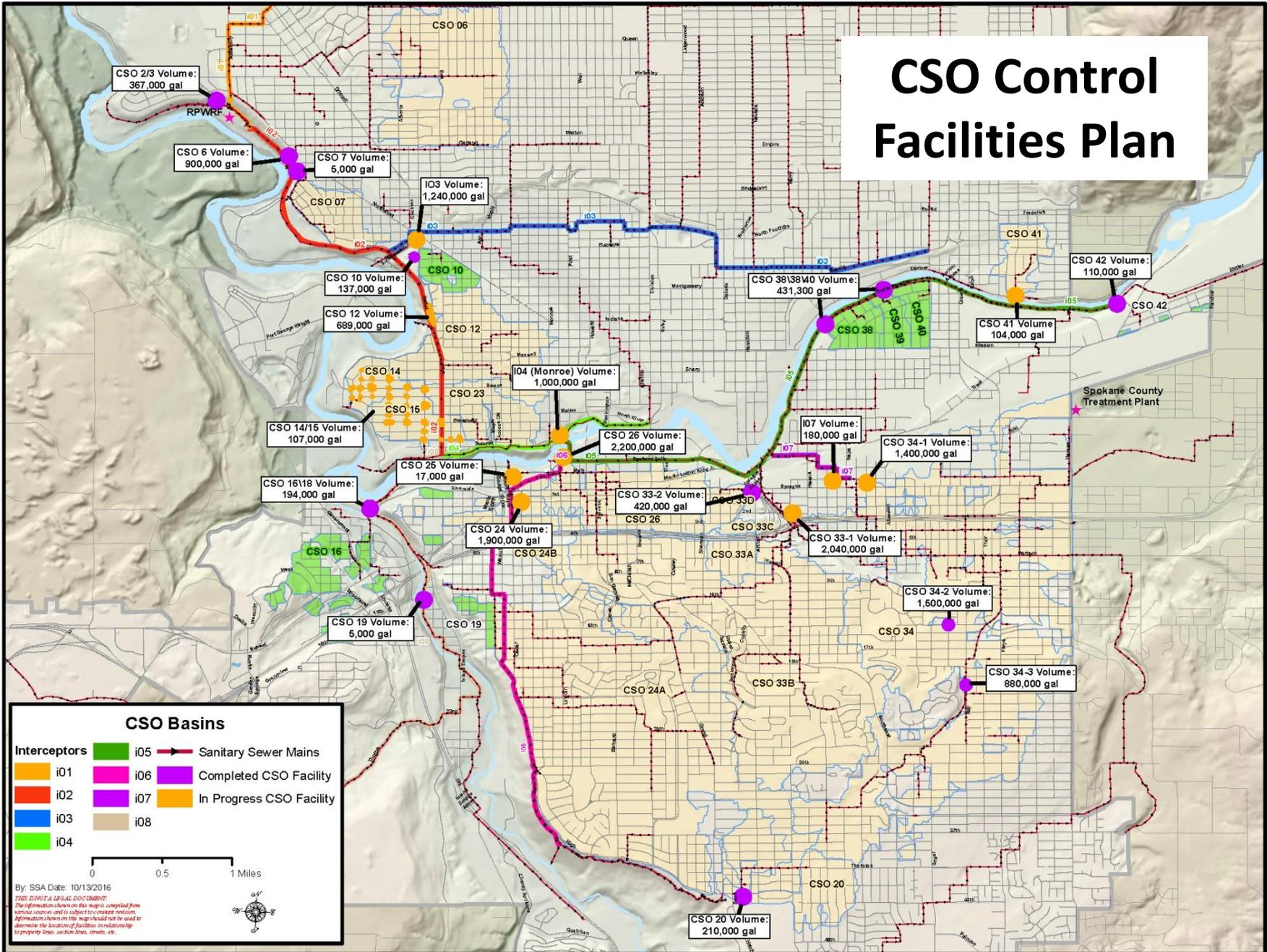
CSO Project Objectives

Environmentally & Financially Responsible

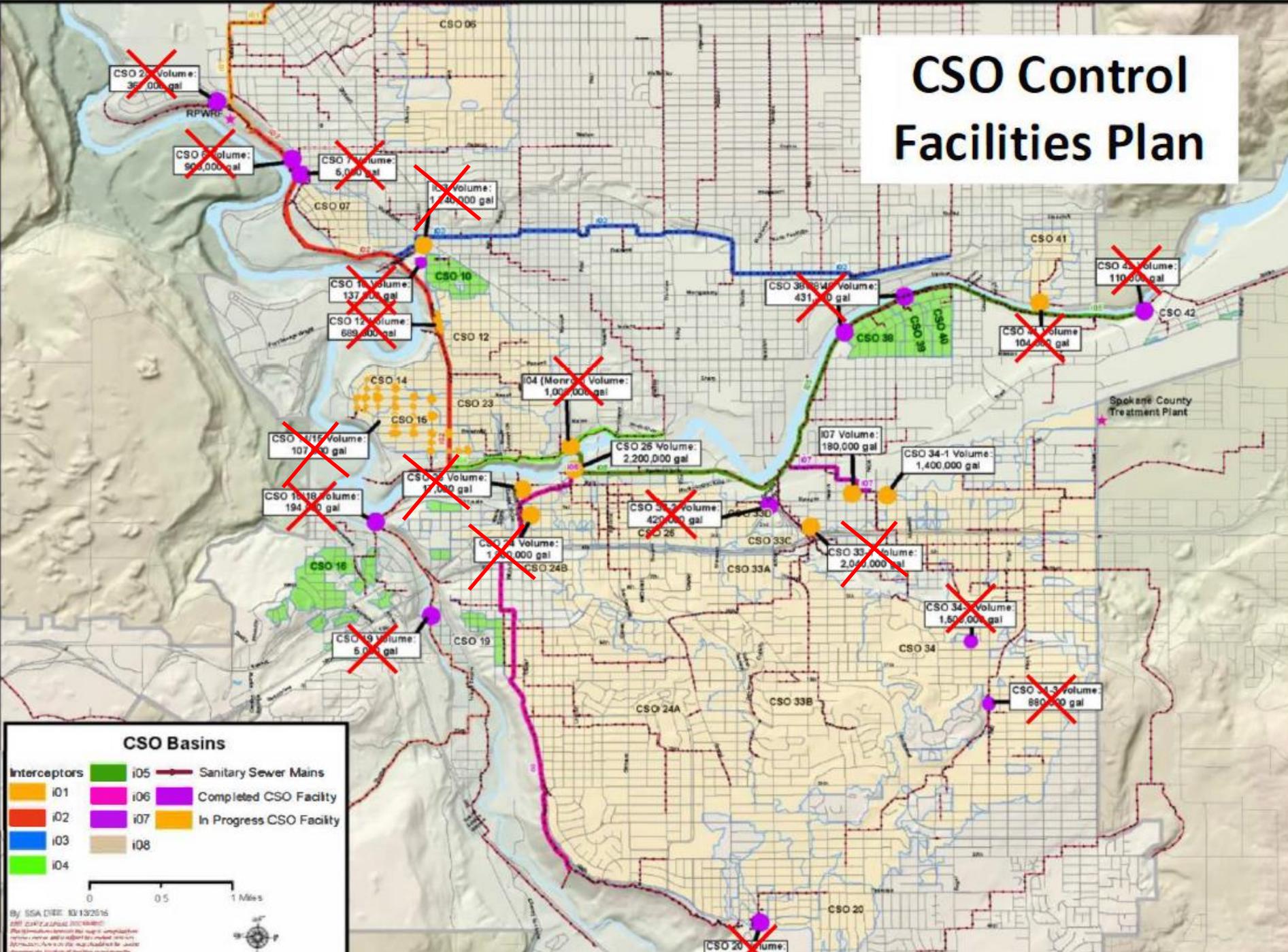
- Cleaner River faster.
 - Prioritize work that has a greater impact on pollutants.
- Implement cost-effective & innovative technologies.
 - Add “green” technologies.
 - Right-size existing projects.
- Holistic integration with other critical infrastructure.
 - Solve multiple problems.
 - Better streets, new water mains, better parks...
 - Remove stormwater from systems



CSO Control Facilities Plan



CSO Control Facilities Plan



CSO Basins

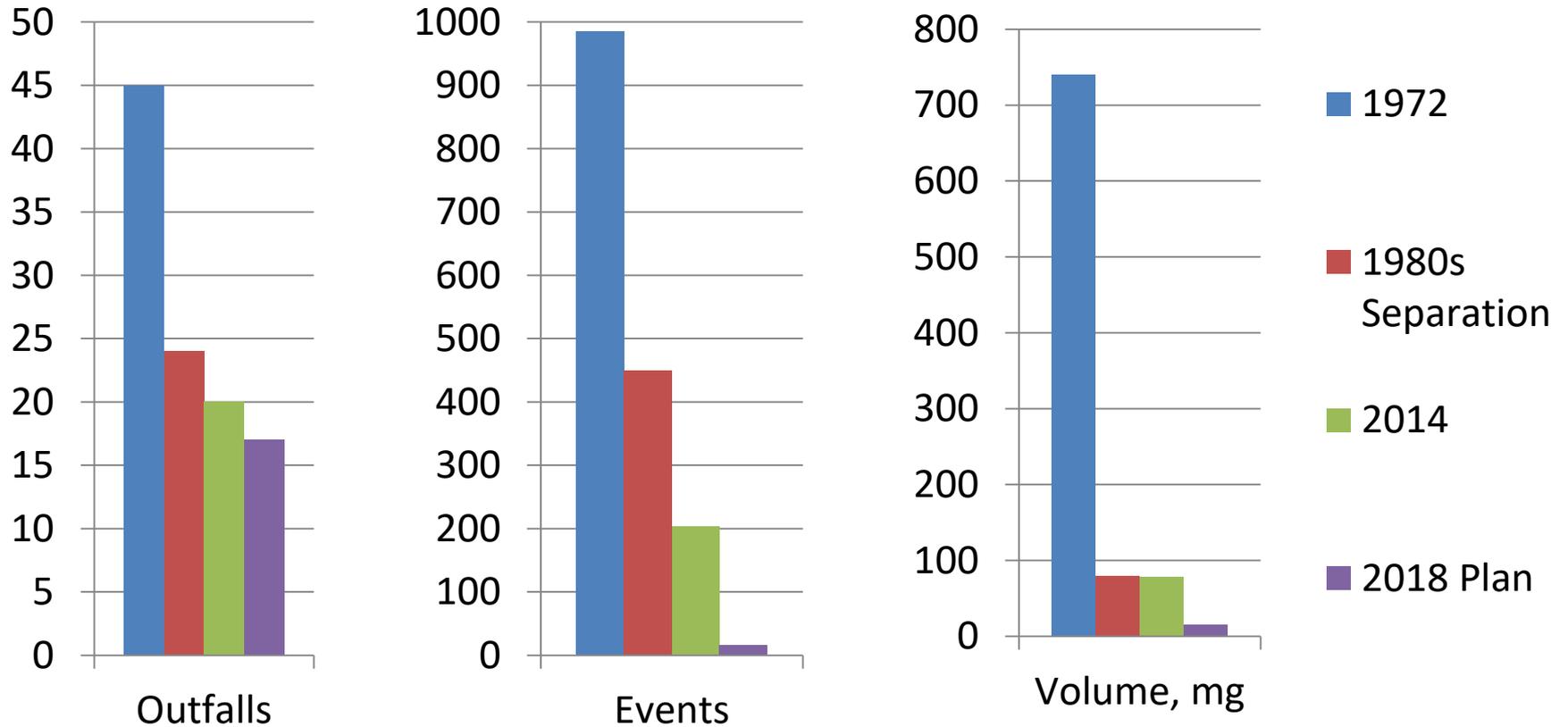
Interceptors	i05	Sanitary Sewer Mains
i01	i06	Completed CSO Facility
i02	i07	In Progress CSO Facility
i03	i08	
i04		

0 0.5 1 Miles

By SSA (REV. 10/13/2016)

THIS PLAN IS A PRELIMINARY DESIGN. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA AND INFORMATION PROVIDED HEREON. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

CSO Reduction History



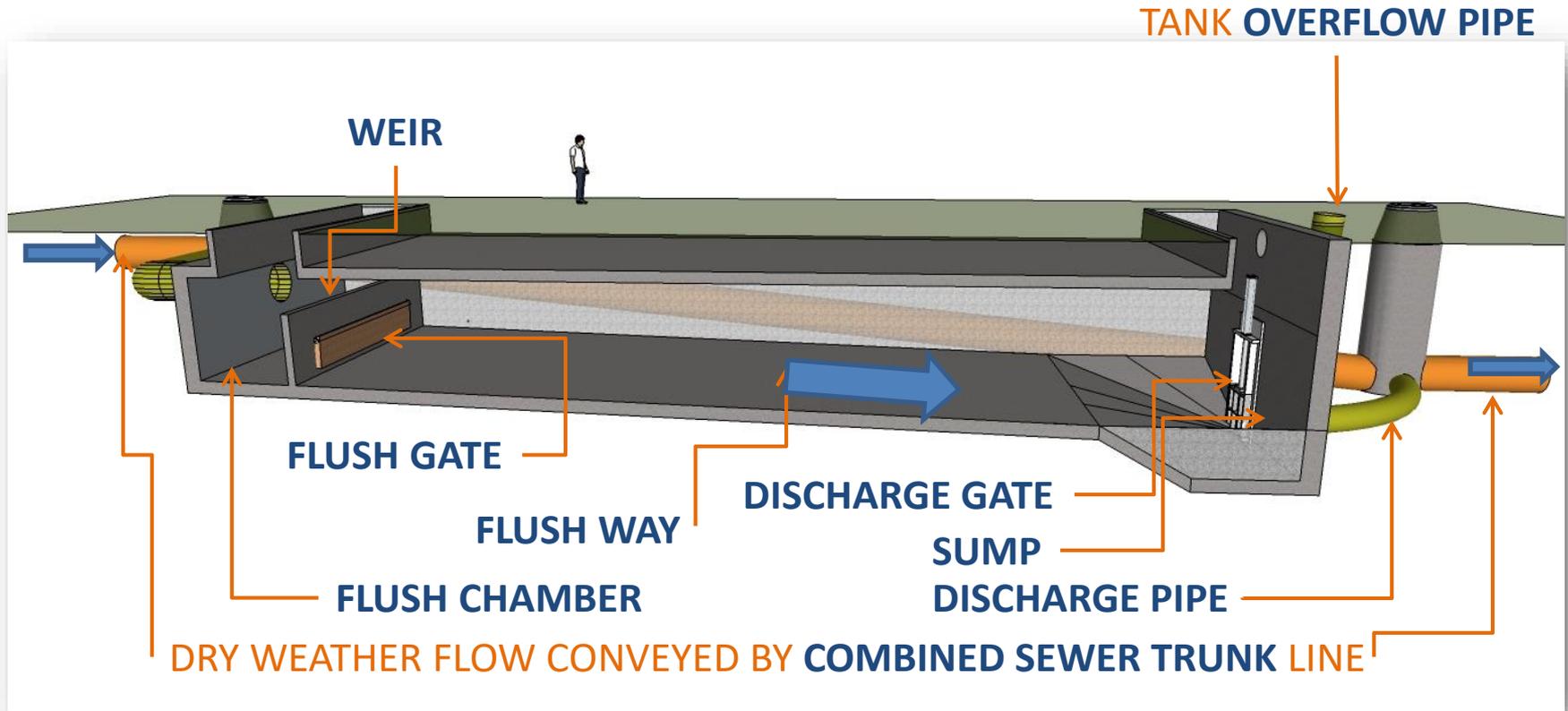
CSO Tanks

Status Overview Winter 2019

CSO Tanks Overview	TOTAL VOLUMES
Operating or Substantially Complete	12,411,300
Under Construction	4,250,000
TOTAL	16,661,300



Basic Design of a CSO Tank



Investigative Determinations

Pre-Construction

- Rock prevalent over entire site at various depths
 - Additional rock profiling completed
- Blasting considered viable
- Orientation to avoid rock excavation quantities
- Presence of ceramic at one boring should have raised a red flag

Excavation Progression





09/09/2014

Ruh Roh...



Fun Fact!

Since 2013, the city has received almost \$77 million dollars in low-interest loans from Ecology to build Combined Sewer Overflow (CSO) tanks that protect the Spokane River by preventing sewer overflows during storm events.



Some projects are hungrier than others.....



CSO 33-2 Funding

- Original engineer's estimate and State Revolving Fund (SRF) loan award: \$4,270,000
 - Construction - \$3,838,697
 - Construction Management - \$480,491
- Additional costs incurred due to unexpected contamination: \$605,140
 - Rotate tank to keep foundation on rock and out of contamination
 - Subgrade drainage
 - Wall backfill
 - Revised odor ductwork
- Additional SRF funds offered (per WAC 173-98-520(5)(6): \$553,797
 - Bid overrun - \$369,198
 - Change order allowance - \$184,599



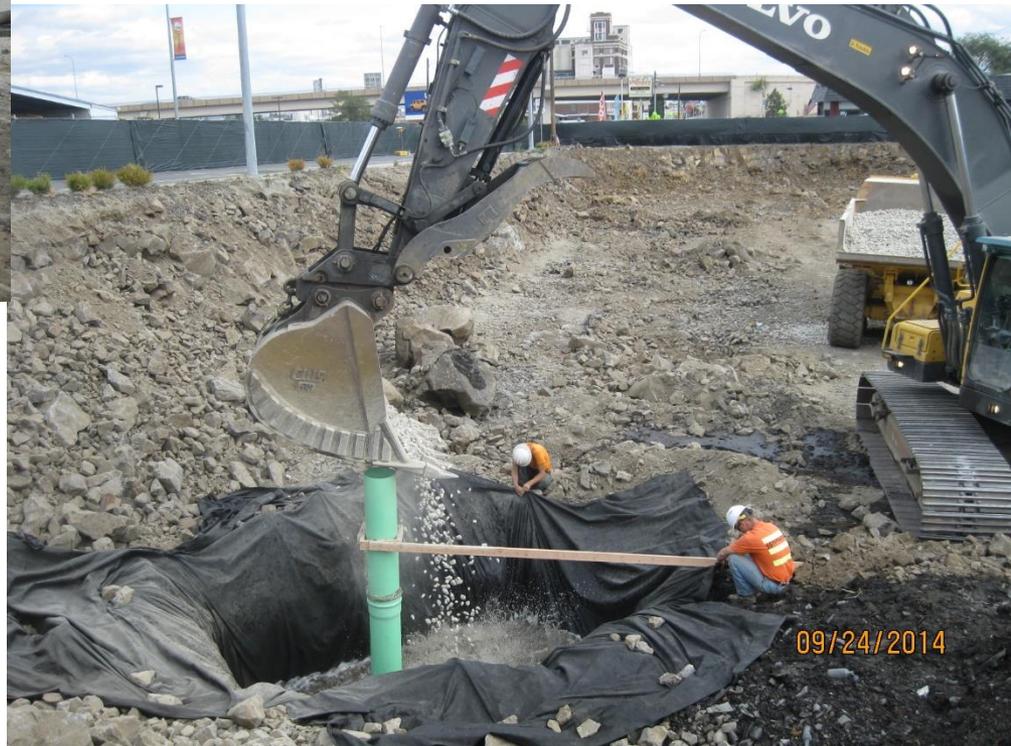
Remedial Action Grant

- Contamination discovered during excavation in 2014
- City entered into Ecology's Voluntary Cleanup Program
 - Applied for a Remedial Action Grant and awarded \$600,000

Deliverables:

- Remedial Investigation and Feasibility report to provide a better understanding about the extent of contamination at the site
- A clean site that the City can reuse both on the surface and below ground for a landscaped public green space, possible play field and/or public garden and the CSO control facility

Baker Tank to Dewater Site



Drain Pad



09/26/2014

Boulder Pile





Fun, wet, waste





10/06/2014



10/07/2014

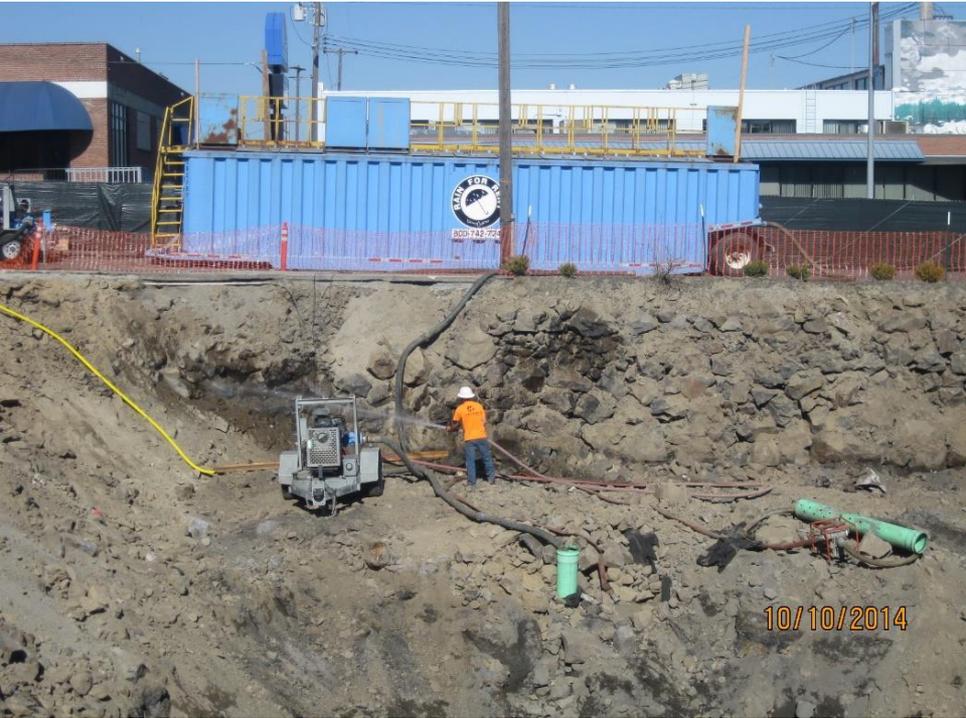


10/08/2014

Burned Trash and Debris



Stacked Rock Wall Under Sprague



Look back to History



E. SPRAGUE AVE., FEB 3^d 1909.

FROM EAST END OF EMBANKMENT

W.O. REED, PHOTO

Stacked Rock Wall and ponded water





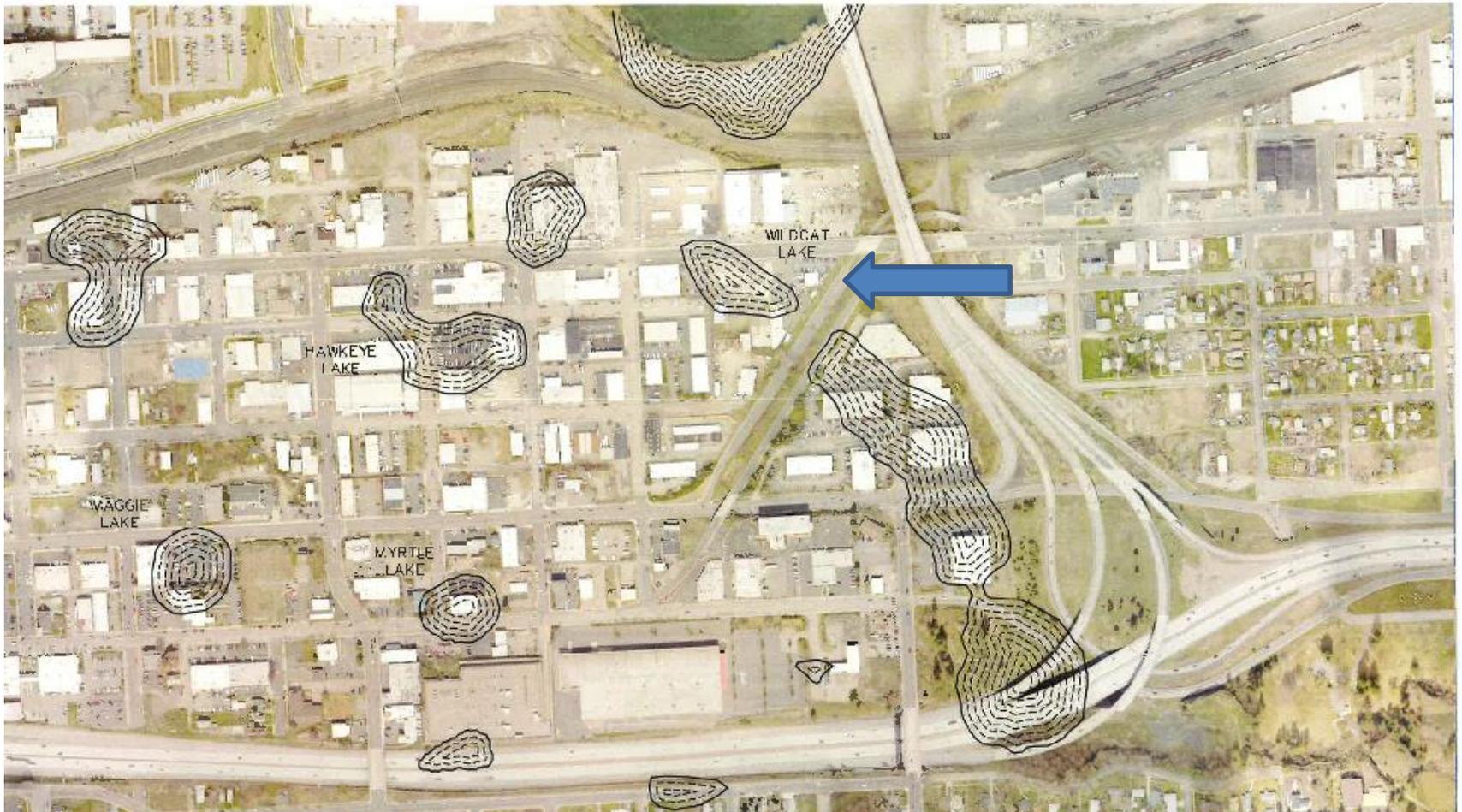
E. SPRAGUE AVE FILL, APRIL 24 1909.

W. O. Reed. Photo



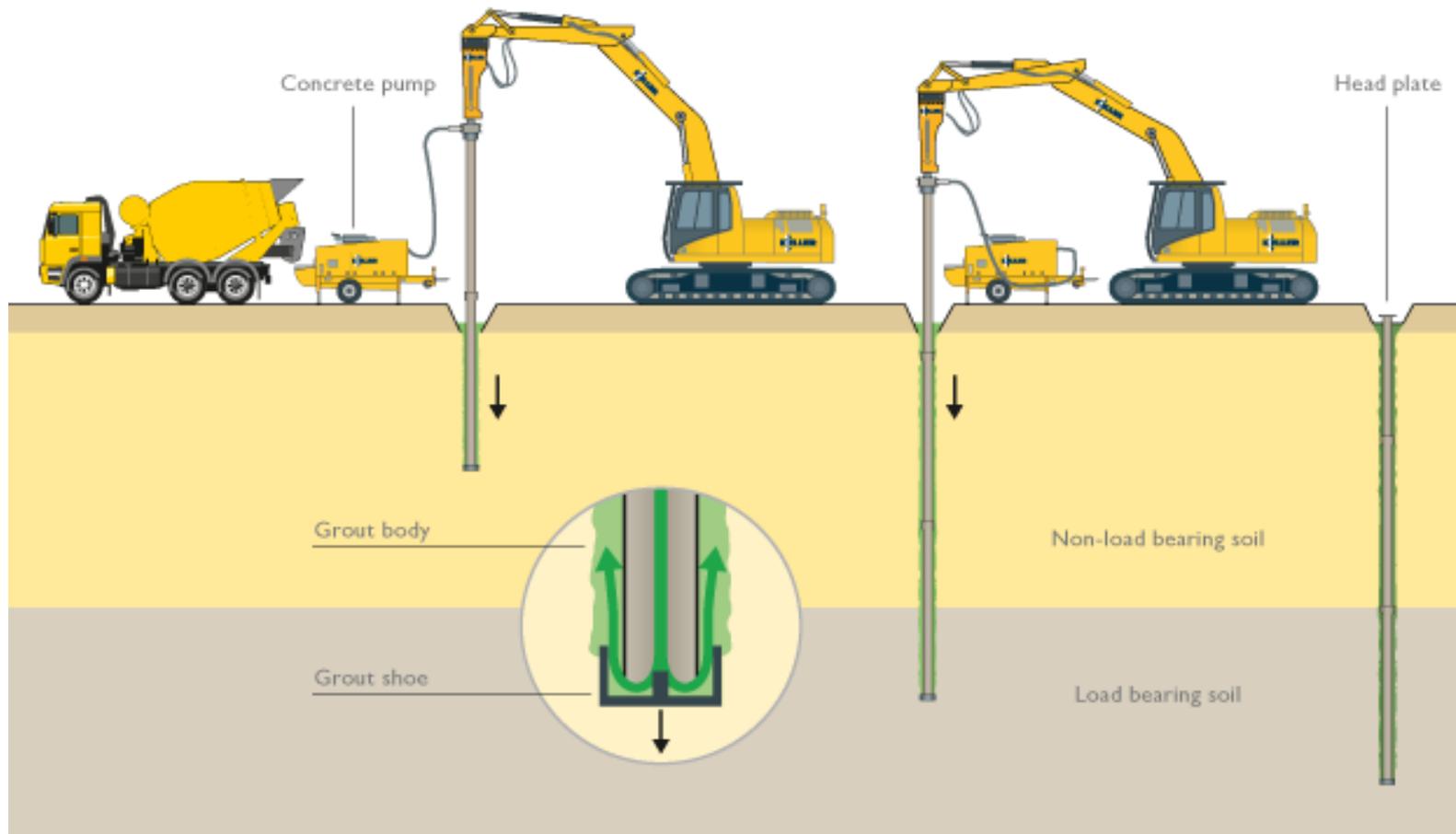
E. SPRAGUE AVE. FILL.
JULY 1st 1909.

Historic Lakes Overlaid



Secure Bearing

Rock is our friend, for once



Rotate Tank Orientation





03/06/2015



05/15/2015





The Connection with Streets

- ▶ Plan requires a long-term commitment to eliminate stormwater as we rebuild streets
 - Mitigates risk (growth & climate change)
 - Reduces stormwater & wastewater system capacity requirements
 - Saves money
- ▶ Commitment becomes a cornerstone of our new Street funding strategy





Thank you!