

# **Challenges of Conducting an Early Removal Action within the Lower Duwamish Waterway Superfund Site**

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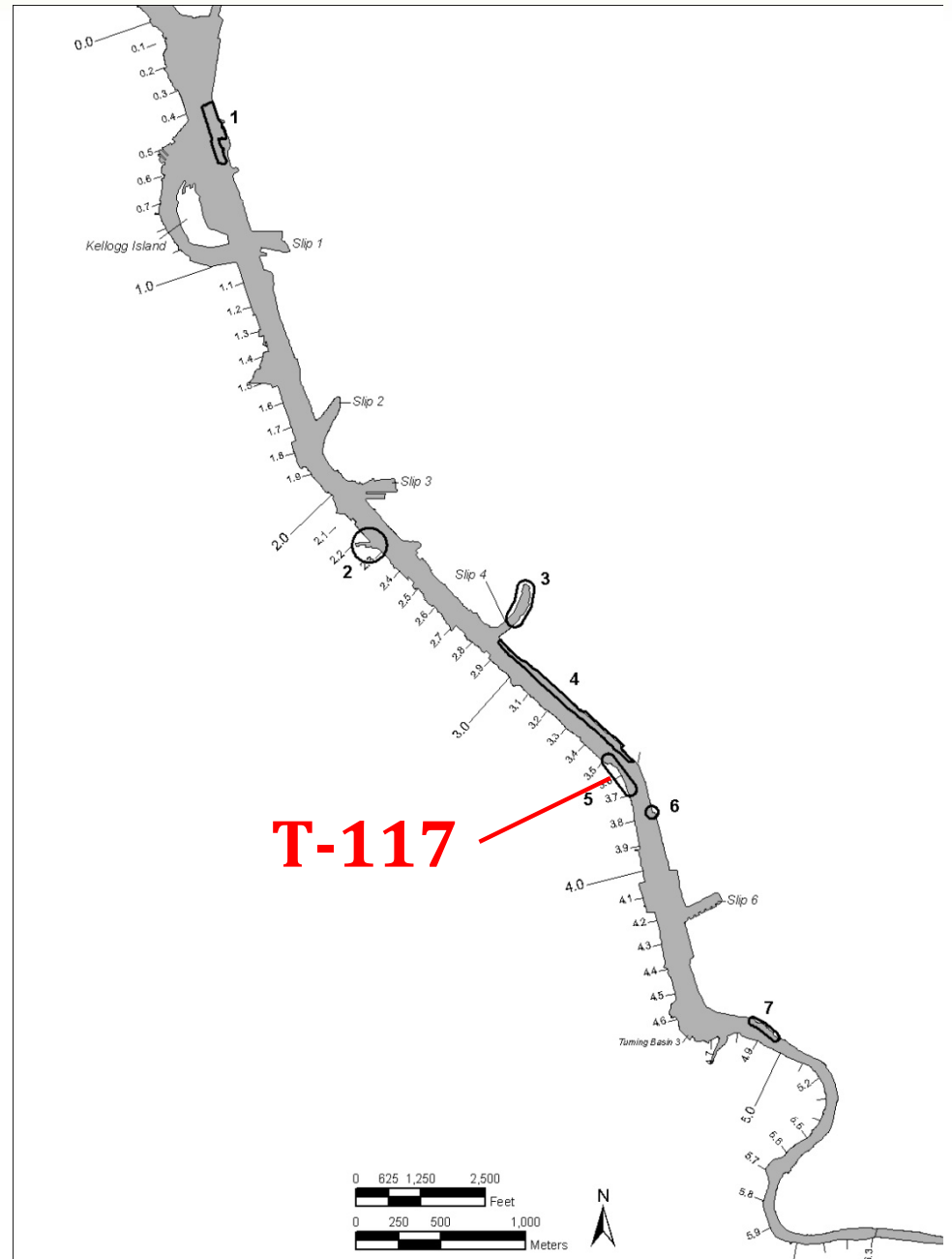
*Port of Seattle*

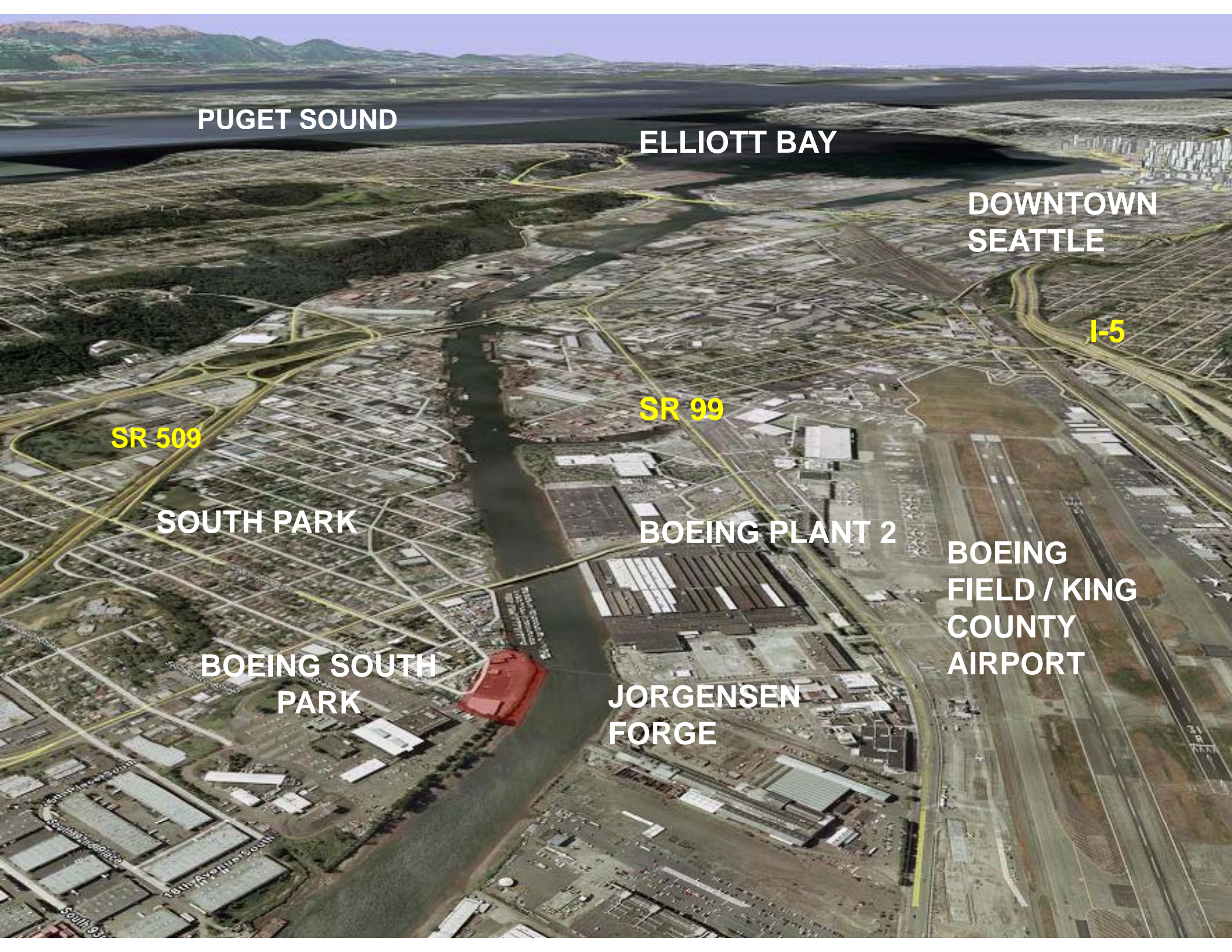
# Early Removal Action Site

- Under CERCLA: non-time-critical removal action
- Intended to address priority risks
- Focused on areas of higher-concentration contaminants
- Remove/control sources within larger Superfund cleanup sites
- Often emphasizes “removal”

# Terminal 117

Terminal 117 (T-117) –  
One of seven candidate  
Lower Duwamish  
Waterway (LDW) sites  
identified for early action





**PUGET SOUND**

**ELLIOTT BAY**

**DOWNTOWN  
SEATTLE**

**I-5**

**SR 509**

**SR 99**

**SOUTH PARK**

**BOEING PLANT 2**

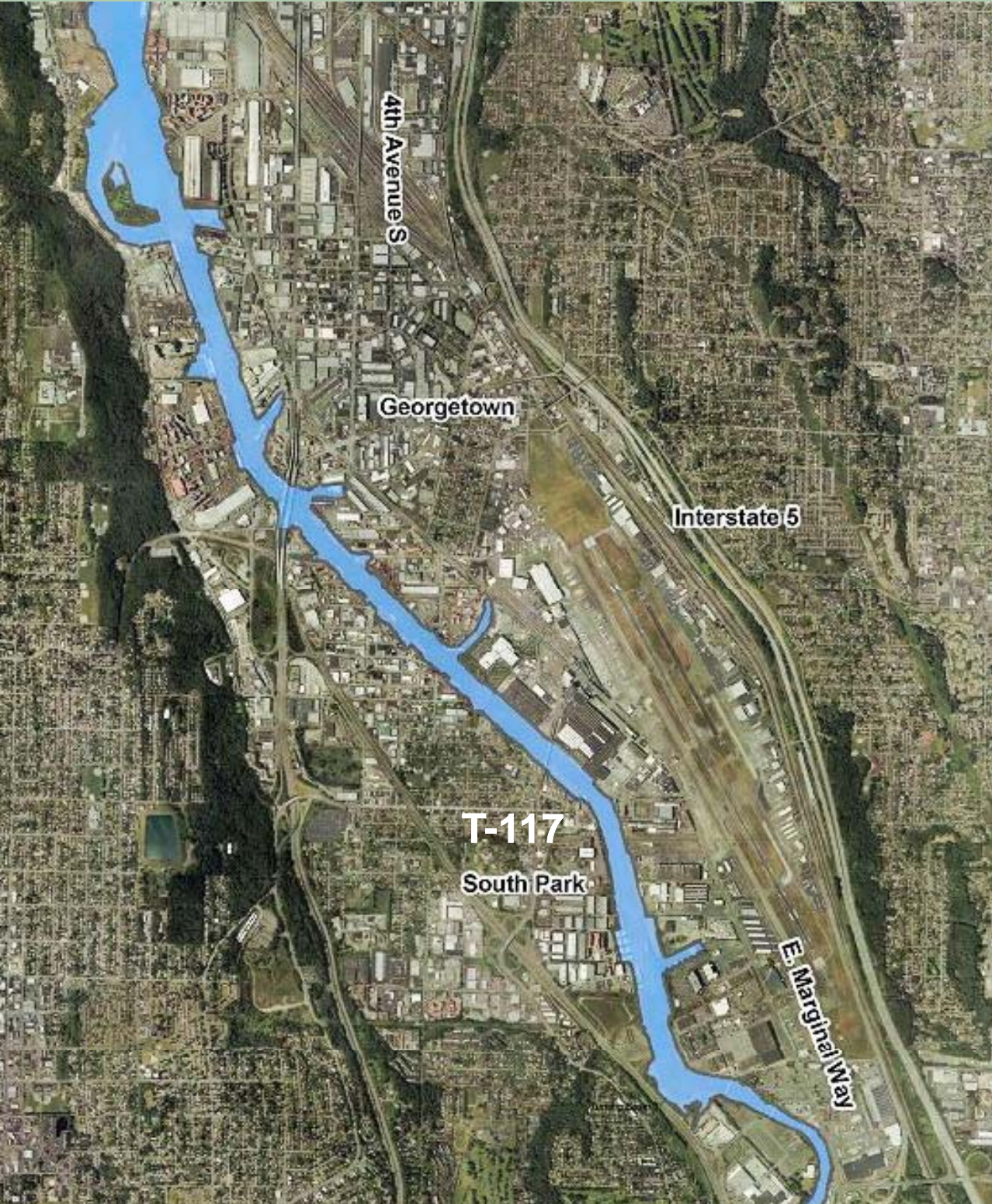
**BOEING  
FIELD / KING  
COUNTY  
AIRPORT**

**BOEING SOUTH  
PARK**

**JORGENSEN  
FORGE**



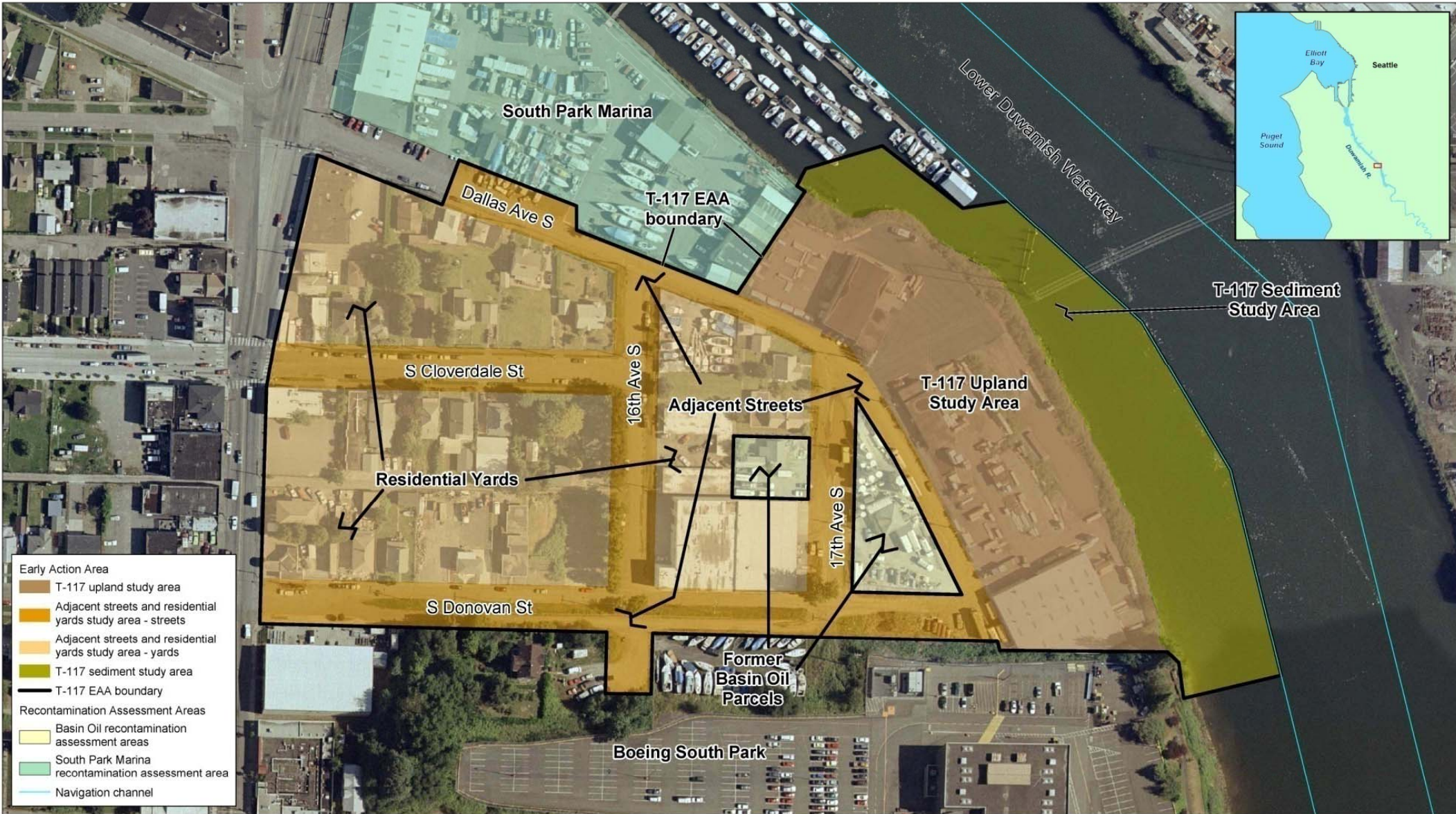
# Lower Duwamish Waterway



# Terminal 117 Early Action Area



# Three Study Areas



# T-117 Shoreline and Sediment





# T-117 Upland Area



# Adjacent Streets and Yards



# Assignment

Prepare an engineering evaluation and cost analysis (EE/CA) for a non-time critical removal action

Environmental Protection  
Agency

Solid Waste and  
Emergency Response

EPA/540/F-94/009  
PB93-963422  
December 1993



## Conducting Non-Time-Critical Removal Actions Under CERCLA

Office of Emergency and Remedial Response  
Hazardous Site Control Division, 5202 G

# Challenges

- Site that expanded over time
- Changes in cleanup goals and contaminants of concern (COCs)
- Coordinating upland and in-water cleanup goals
- Addressing source control expectations
- Community involvement

# T-117 Study Area - 2005



# T-117 Study Areas - 2008



- Early Action Area
  - T-117 Upland Area
  - Adjacent Streets
  - T-117 Sediment Study Area
  - T-117 EAA boundary
  - Preliminary T-117 Sediment Removal boundary
- Recontamination Assessment Areas
  - Basin Oil recontamination assessment areas
  - South Park Marina recontamination assessment area
  - Navigation channel
- Contour lines
  - Contour (10 feet)
  - Contour (2 feet)

Preliminary  
T-117  
Sediment  
Removal  
boundary

T-117 Sediment  
Study Area

T-117 EAA  
boundary

Dallas Ave S

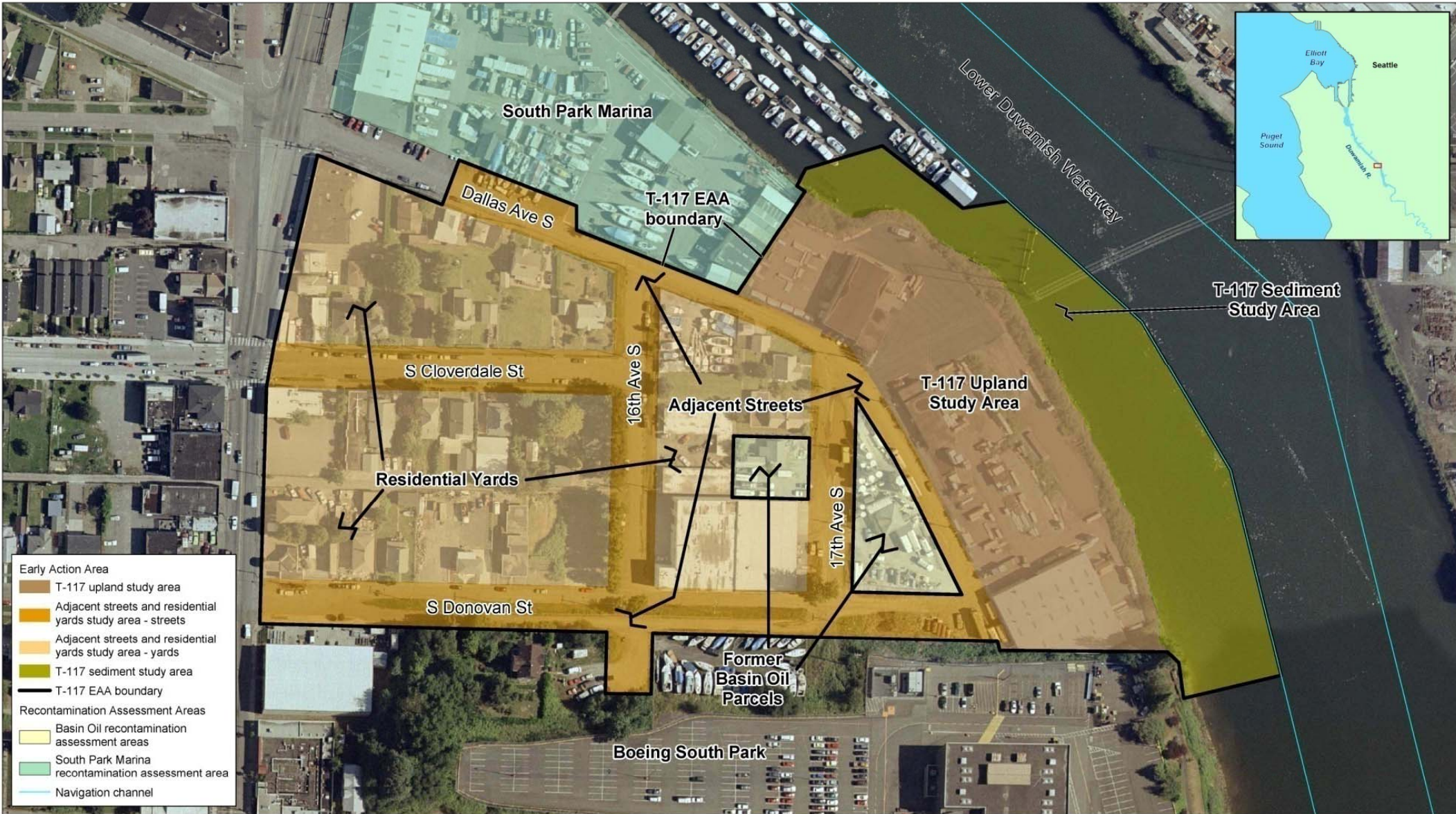
S Cloverdale St

16th Ave S

S Donovan St

17th Ave S

# T-117 Study Areas - 2010



# Additional COCs and expanded cleanup goals

- Site expansion into the upland
- Inclusion of groundwater
- Proximity to residential areas
- Washington State regulations as applicable or relevant and appropriate requirements (Model Toxics Control Act)
- Evolving remedial investigation and risk analyses for the large surrounding Superfund site



# Contaminants of Concern

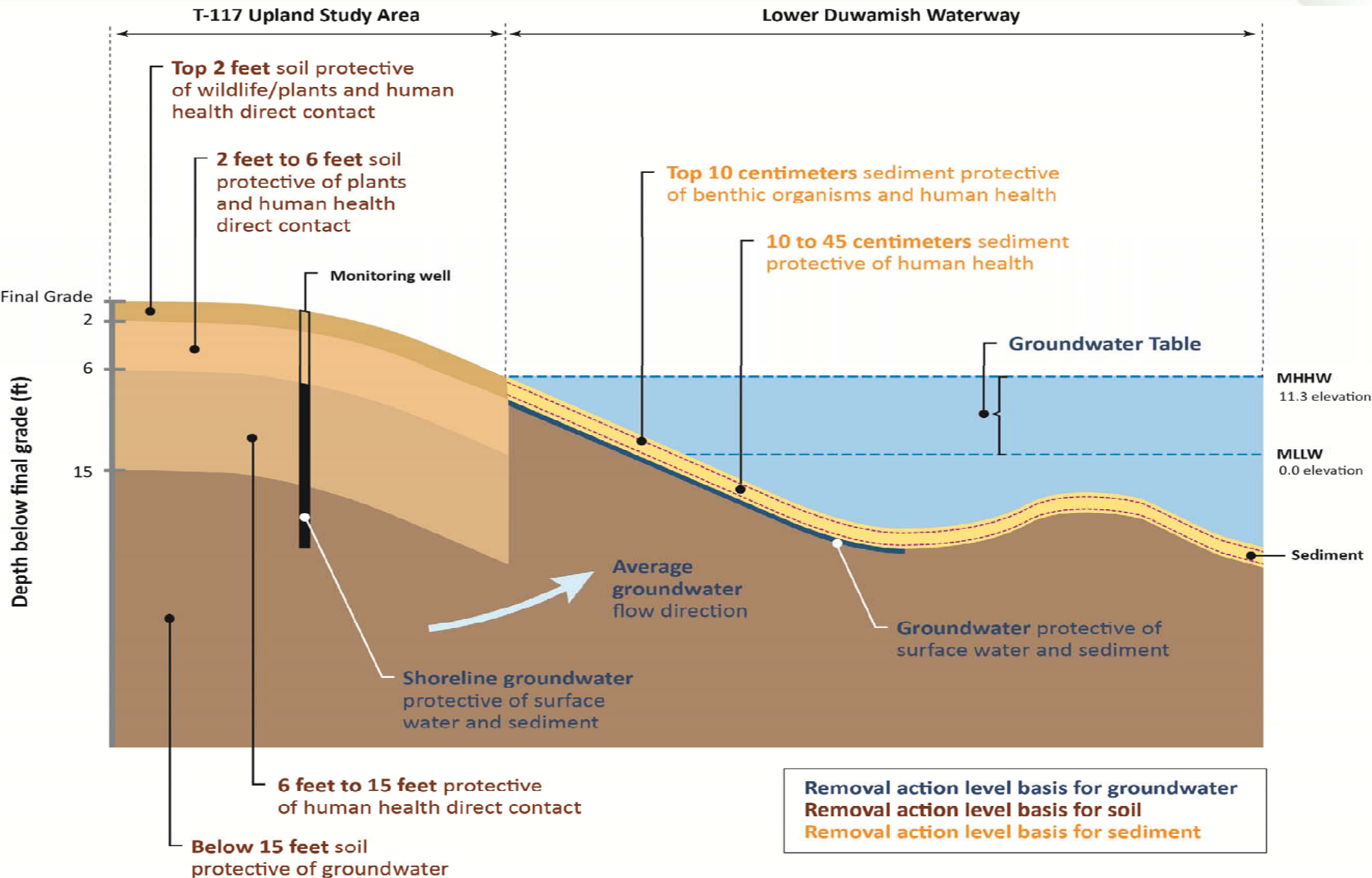
COCs	Sediment	Soil		Groundwater
		T-117 Upland Study Area	Adjacent Streets & Residential Yards	
Arsenic	X	X		X
Silver		X		X
cPAH TEQ	X	X		X
PAHs	X			
TPH (diesel and oil range)		X		X
BEHP				X
Phenol	X			
Total PCBs	X	X	X	X
Dioxin/furan TEQ	X	X	X	

**Blue = COC identified in 2005**

**Red = COCs added in 2008**

**Black = COCs added in 2010**

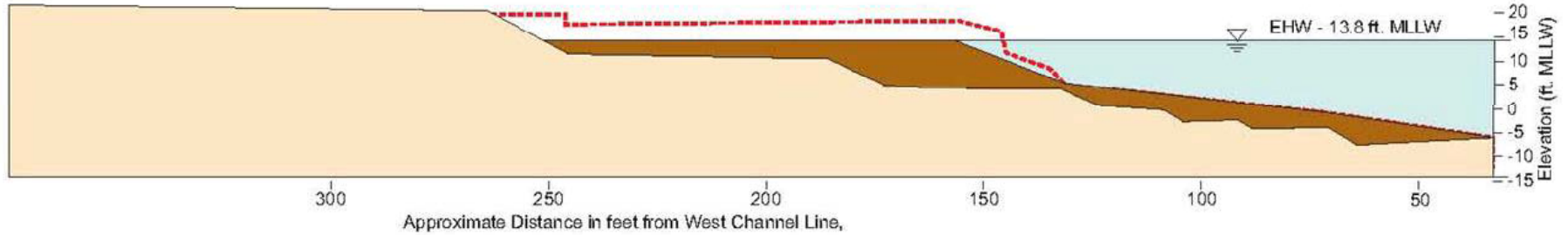
# Cleanup-Level Considerations



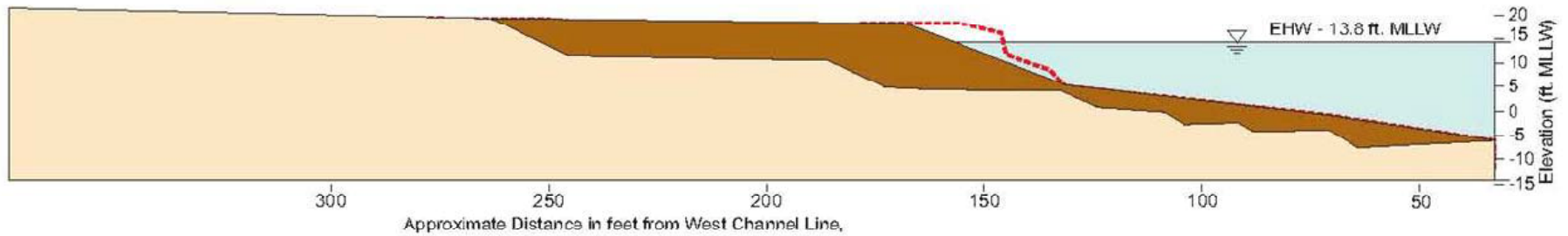
# T-117 Removal Areas



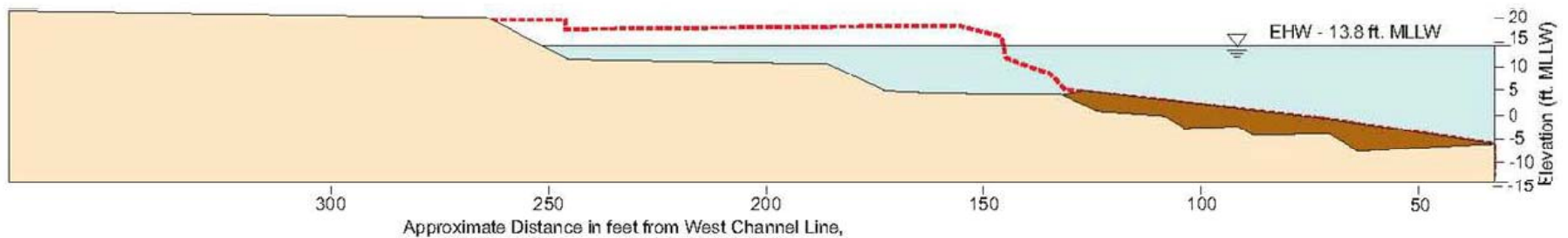
# Completion Options



Baseline: backfill upland to elevation +14 ft. MLLW

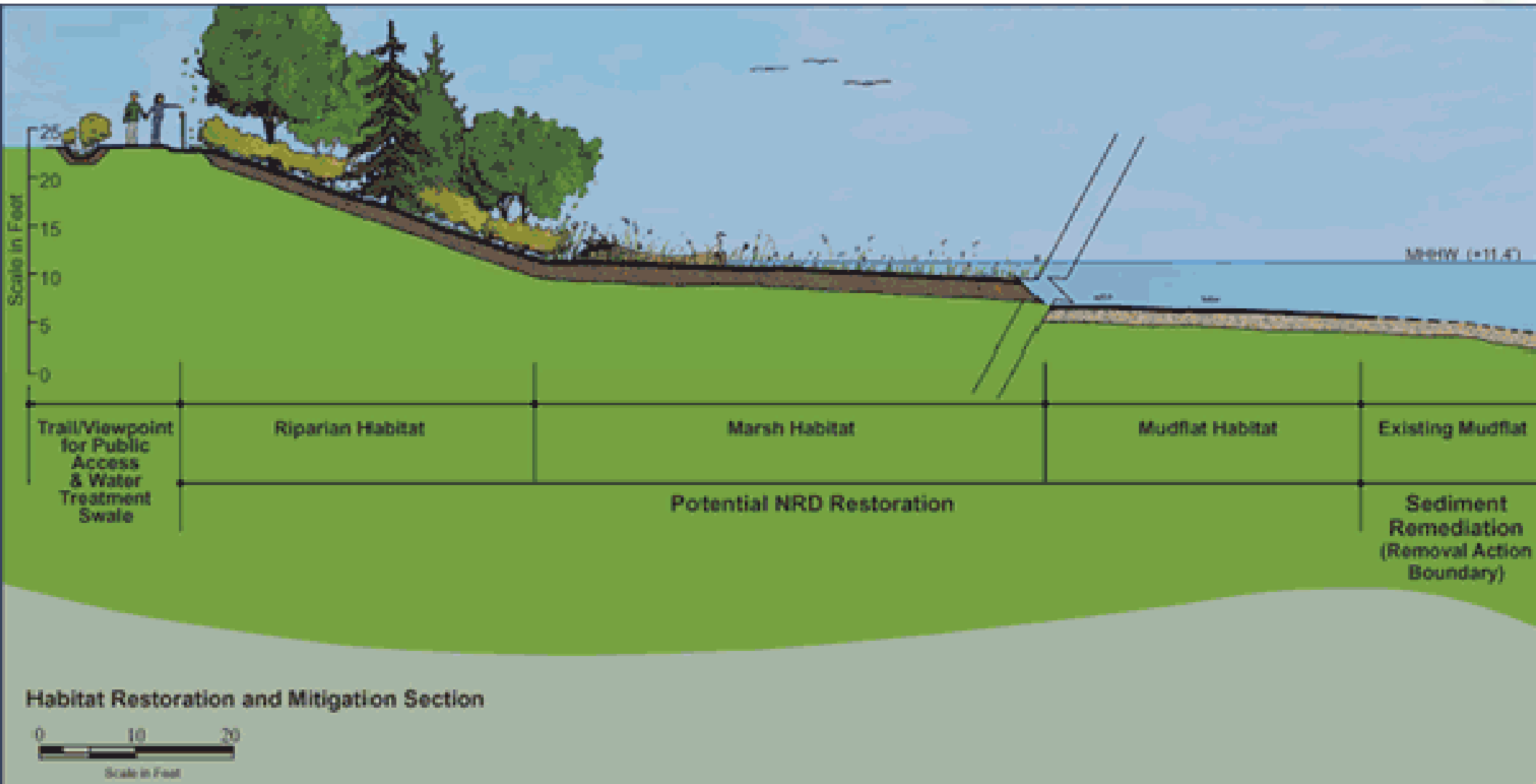


Option A: Backfill upland to elevation +18 to +20 ft. MLLW



Option B: No upland backfilling, leave for habitat development.

# Conceptual Final Site Uses



## Conceptual Option for T-117 Habitat Restoration



T-117 CONCEPT PLAN

OPTION 2



# Addressing Source Control Expectations



# Multiple Agencies and Regulations

EPA lead:

- Lower Duwamish Waterway Superfund site
- T-117 Early Action Area

Washington State Department of Ecology  
(Ecology) lead:

- Source control



# Recontamination Assessment Areas



# Offsite Urban and Industrial Sources/ Deposition of Airborne Contaminants

## Recontamination Assessment Areas (Sources)

Basin Oil

South Park  
Marina

## T-117 Early Action Area (Sources)

Adjacent Streets  
and Residential  
Yards Study Area

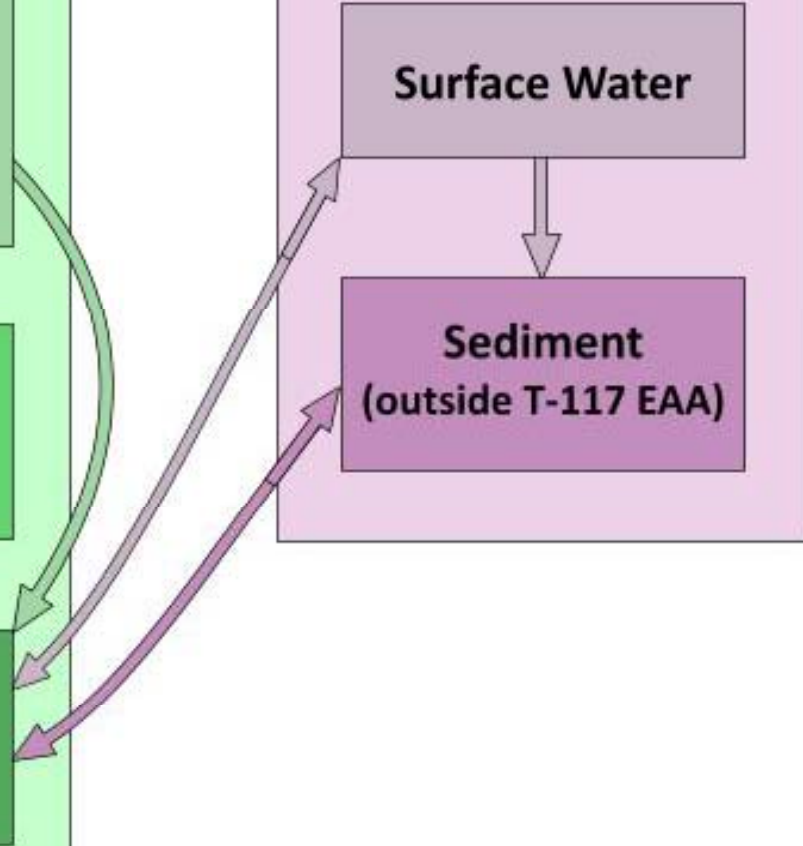
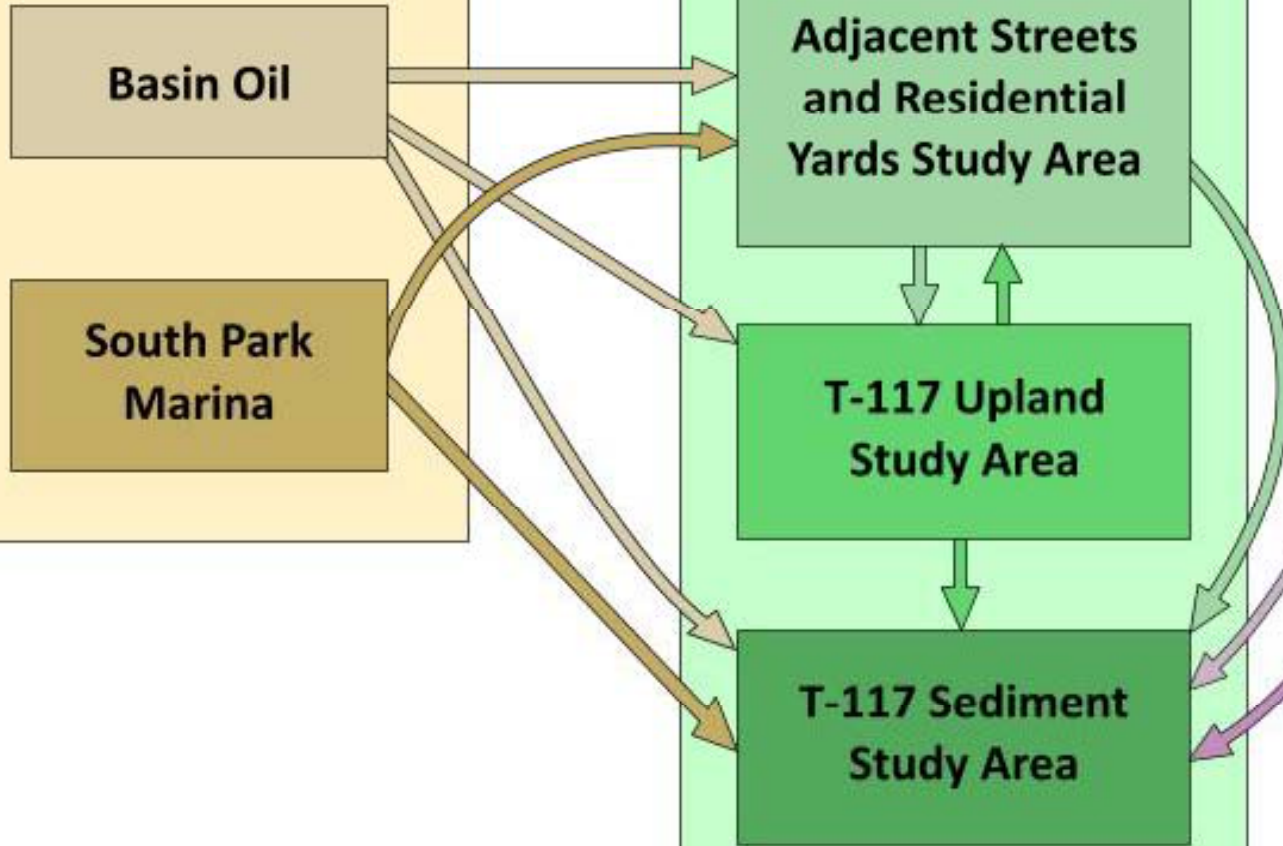
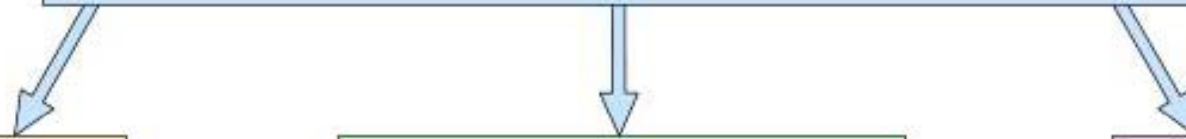
T-117 Upland  
Study Area

T-117 Sediment  
Study Area

## Lower Duwamish Waterway (Sources)

Surface Water

Sediment  
(outside T-117 EAA)



# Community Involvement

## Terminal 117 Cleanup

June 2010

### Your participation is important!

Here are some of the things we have done to keep you informed and involved:

#### Created Project Materials

- Fact Sheets in English, Spanish and Vietnamese
- Project Poster
- Executive Summary of the cleanup plan in English, Spanish and Vietnamese
- Children's coloring sheet in English and Spanish
- Project Web site ([www.t117.com](http://www.t117.com))
- Recorded questions and answers from community events in a Listening Log

#### Attended Community Events and Briefings

##### Community Events

- 2009 Duwamish River Festival
- 2010 University of Washington/Duwamish River Cleanup Coalition Charrette
- 2010 Duwamish Alive Celebration
- 2010 Community meeting with residents from the study area
- 2010 Environmental Health Fair
- 2010 South Park Food Bank at the Providence Regina House
- 2010 Public meeting with Spanish and Vietnamese interpreters

##### Community Briefings

- South Park Neighborhood Association
- Georgetown Community Council
- Greater Duwamish District Council
- South Park Community Center Advisory Council

#### Posted Project Information at Community Locations

- Project Kiosk at T-117 site
- South Park Community Center
- South Park Information Center
- South Park Neighborhood Center
- Sea Mar Health Center
- South Park Library
- Concord Elementary
- Door-to-door flyering to nearby neighbors



# Terminal 117/Malarkey Asphalt Superfund Cleanup

## Community Meetings

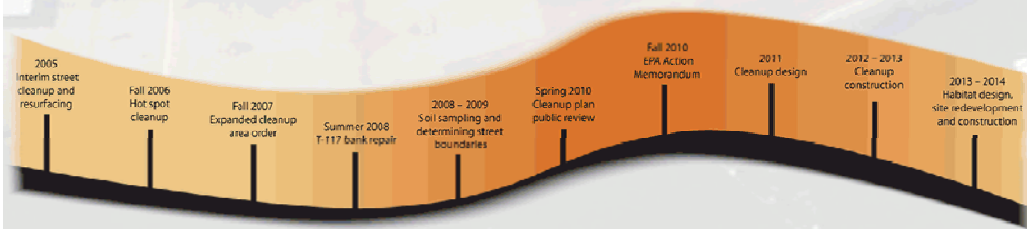
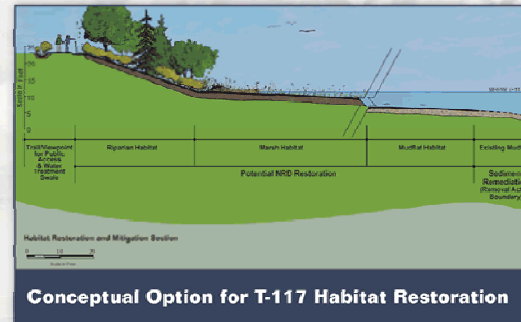
### Current Project Status

- Final stages of cleanup planning
- Reaching out to the community
- Continuing site maintenance and ground water monitoring



### Upcoming Activities

- Public review and comment on draft cleanup plan
- EPA Action Memorandum (approved final cleanup plan)
- Design and construction of cleanup
- Design of T-117 redevelopment and habitat restoration



The Port of Seattle and City of Seattle are committed to working with the EPA, Ecology, the neighbors and community to develop and implement the site cleanup.

- Piper Peterson Lee, Environmental Protection Agency Project Manager, 206-553-4951, Peterson-Lee.piper@epa.gov
- Roy Kuroiwa, Port of Seattle Project Manager, 206-787-3814, Kuroiwa.r@portseattle.org
- Tom Meyer, Seattle City Light Project Manager, 206-386-9168, Tom.meyer@seattle.gov

# Community and Technical Website



- Home
- T-117 Story
- Get Involved
- We're Listening
- Library
- Contact Us

## Project Overview

[Español](#)
[Tiếng Việt](#)
[ព្រឹត្តិការណ៍ខ្មែរ](#)

The Terminal 117 cleanup site (T-117), located on the west bank of the Lower Duwamish Waterway in South Park, is a joint cleanup project by the Port of Seattle and City of Seattle. This site was identified for early cleanup (before the larger river cleanup) because the upland property, river bank and sediments in the waterway have high concentrations of PCBs (polychlorinated biphenyls), dioxin/furans and other contaminants. T-117 is designated as an Early Action Area as part of the Lower Duwamish Waterway Superfund Site listed by the U.S. Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).



[View detailed map \(PDF\)](#)

Cleanup plans are now available for review! Prepare to comment by reading the draft [cleanup plan \(EECA\)](#). The Port and City are developing plans for how the T-117 cleanup will occur. A document called an Engineering Evaluation and Cost Analysis (EE/CA) provides detailed information about the nature and extent of the contaminants at the site, and options for how to do the cleanup. EPA is directing and overseeing the T-117 cleanup and is responsible for approving the cleanup plan. As a partner in the T-117 cleanup, the State Department of Ecology is providing peer review and input to the cleanup activities that control sources of contaminants to the river.

## Upcoming events

**T-117 Cleanup Plan Comment Period**  
 June 7 - July 7, 2010  
 Visit [Get Involved](#) to learn how to comment

**Community Involvement**  
 EPA, the Port and the City want input from the community. We are attending community meetings and events over the next few months to talk about the draft cleanup plan. There will also be a formal 30-day public comment period starting June 7, 2010 and public hearing on the draft plan on June 17, 2010.

[Get Involved](#) and provide input on the plan.

We're listening, [find answers to your community's questions.](#)

# Community Involvement

- Collaborative effort among all involved parties
- Removal action goals and objectives:
  - Accommodate a wide variety of final site uses
  - Be consistent with LDW goals and objectives
  - Solicit community and stakeholder input

# Addressing a Site within a Site: Solutions and Lessons Learned

- Site expanded with time – Source control often means upland shoreline areas (not just sediment) need to be addressed
- Changes in cleanup goals and COCs (also a function of the scope of the early action) – Successful coordination of risk assessments (T-117 and larger LDW site)

# Addressing a Site within a Site: Solutions and Lessons Learned

- Integrating upland and in-water cleanup approaches – Consider a wide range of final site uses (including habitat)
- Addressing source control expectations – Focus on sources and possible contaminant contributions and controls that would exist after final site development
- Community involvement – Start early, maintain focus, and continue throughout project, from planning through implementation



# Acknowledgments

- Port of Seattle
- City of Seattle
- Dalton, Olmsted & Fuglevand
- AECOM
- Integral Consulting
- CRETE Consulting
- EnviroIssues
- EPA
- Ecology

Lower Duwamish Waterway Superfund Site  
Terminal 117 Early Action Area

## REVISED ENGINEERING EVALUATION/COST ANALYSIS

Prepared for:

The Port of Seattle  
and  
The City of Seattle

For submittal to:

US Environmental Protection Agency, Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

June 3, 2010

Prepared by:



AECOM

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CONSULTING, INC.

Dalton, Olmsted & Fuglevand, Inc.  
Environmental Consultants

# Questions?

