

DEPARTMENT OF
ECOLOGY
State of Washington

Port Angeles Rayonier Mill Cleanup Update

Olympic Environmental Council

Rebecca Lawson, P.E., LHG

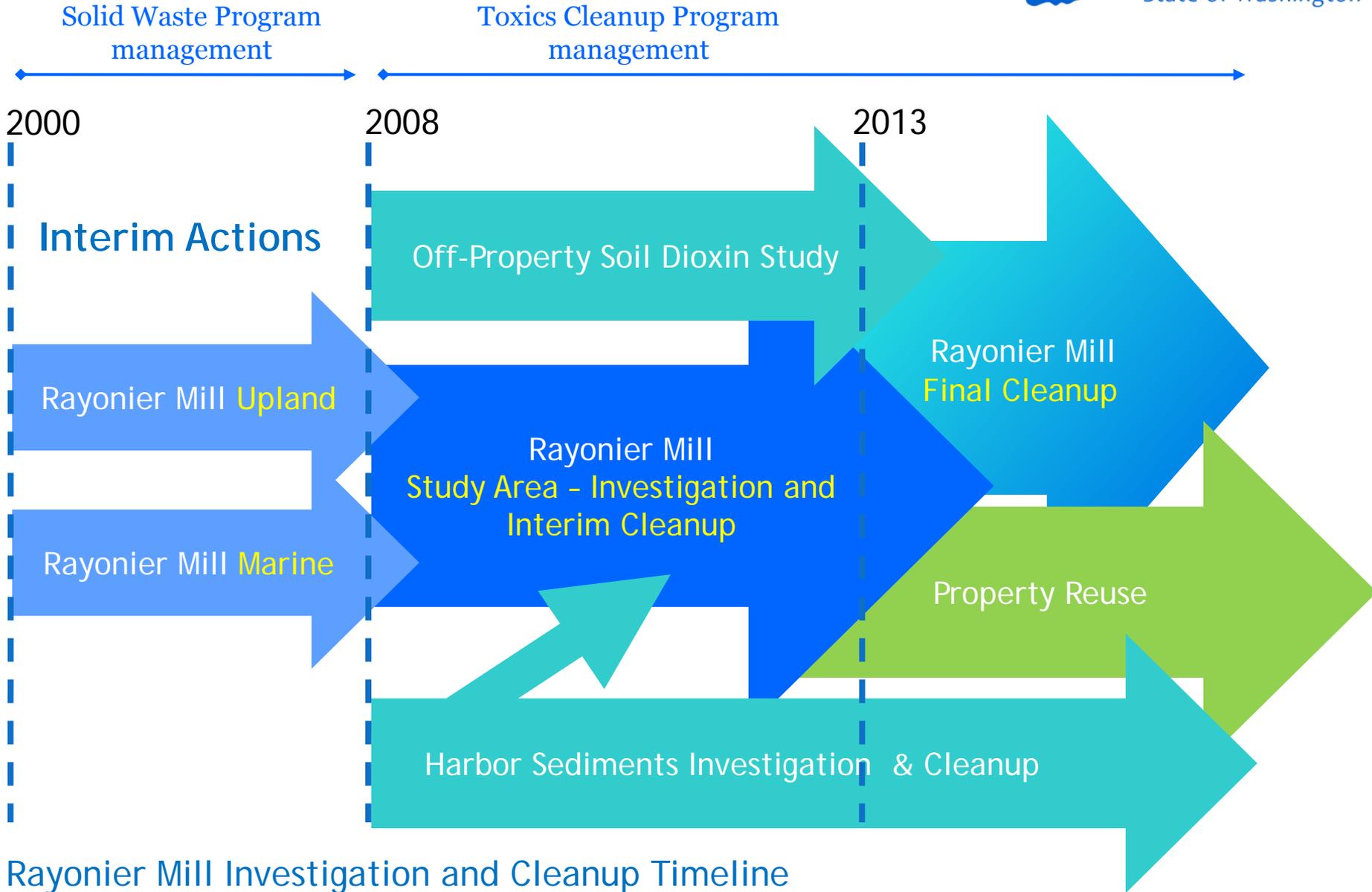
Marian Abbett, P.E.

Connie Groven, E.I.T.

August 18, 2010

Overview

- Rayonier Mill cleanup update
- Upland sampling work plan
- Next steps
- Harbor Sediments
- Soil Dioxin
- Combined Sewer Overflow realignment
- Ennis Creek restoration



Rayonier Mill Investigation and Cleanup Timeline



 StudyArea boundary

Port Angeles Rayonier Mill Study Area

Deliverable	Expected	Actual
Agreed Order effective date		3-25-10
Table of Contents Marine Data Summary report	4-26-10	3-25-10
Agency Review Draft Work Plan - Supplemental Upland Data Collection	5-9-10	4-2-10
Draft Final Work Plan—Supplemental Upland Data Collection	7-20-10	7-20-10
Implement Final Work Plan—Supplemental Upland Data Collection	Fall 2010	
Draft Supplemental Upland Data Collection Technical Memo	Jan 2011	
Agency Review Draft—Marine Data Summary Report	May 2011	
Draft Preliminary Cleanup Standards Section	July 2011	
Agency Review Draft—Upland Data Summary Report	July 2011	
Public Review Draft—Marine Data Summary Report	Oct 2011	
Public Review Draft—Upland Data Summary Report	Nov 2011	
Draft Preliminary Development of Interim Action Alternatives Section	March 2012	
Agency Review Draft Interim Action Alternatives Evaluation Report	Aug 2012	
Public Review Draft Interim Action Alternatives Evaluation Report	Dec 2012	
Public Comment Period (Dec 2012—Feb 2013)		
Draft Final Upland Data Summary Report	May 2013	
Draft Final Marine Data Summary Report	May 2013	
Draft Final Interim Action Alternatives Evaluation Report	May 2013	
Agency Review Draft Interim Action Plan	Aug 2013	



Work Plan for Upland Data Collection

Work Plan

- Where to find it:
 - Ecology's Rayonier website (link from main page)
 - Document repositories
 - Review a copy here tonight
- No public comment period but questions are welcome

Upland Data Collection



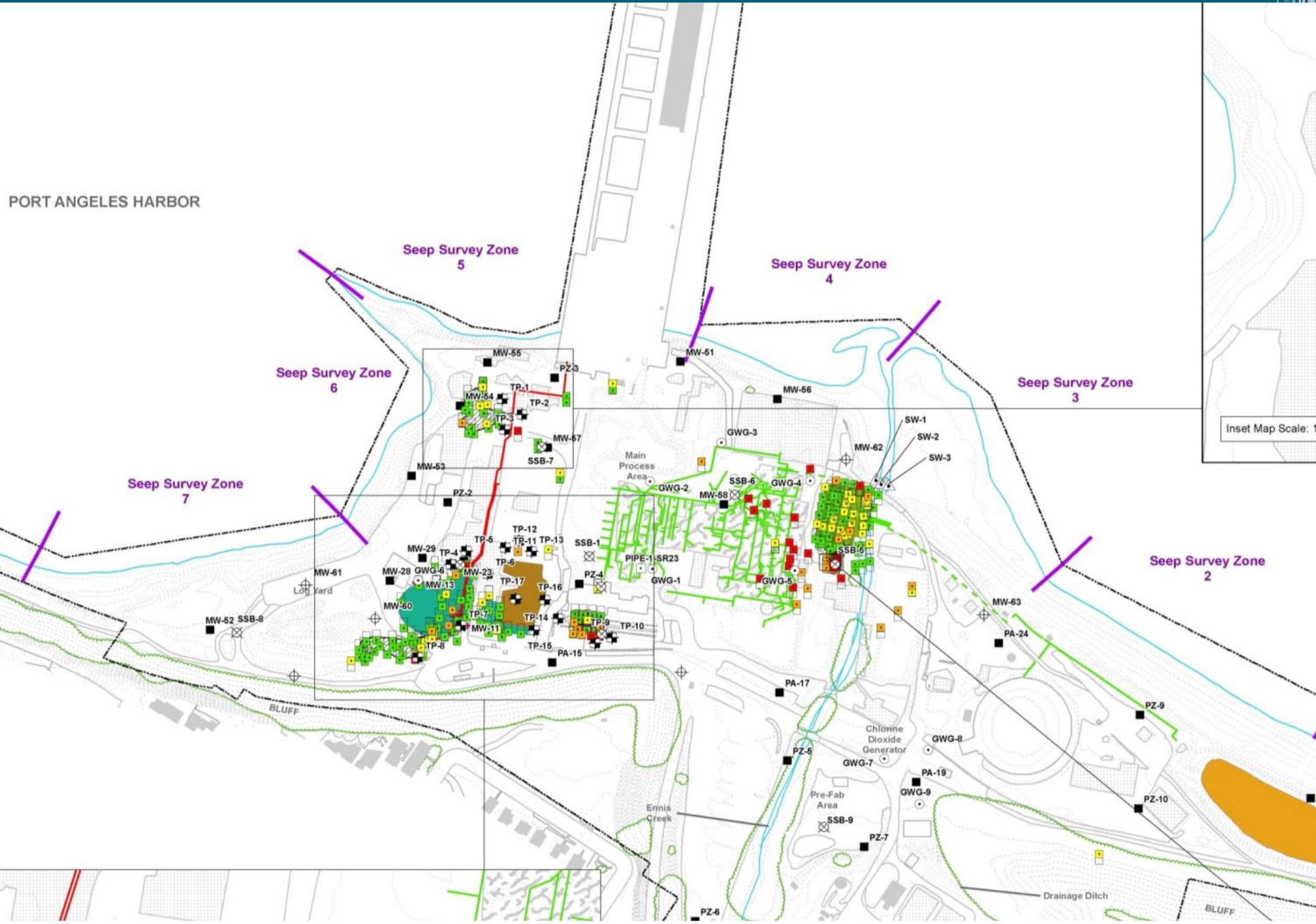
- Five phases August-February
- Sampling from:
 - Existing groundwater wells
 - New wells
 - Shoreline seeps
 - Creeks (Ennis and White)
 - Soils
- Data analysis between phases

Phase One

- Baseline groundwater sampling
- Shoreline seep survey
- Surface water sampling from Ennis and White creeks



PORT ANGELES HARBOR

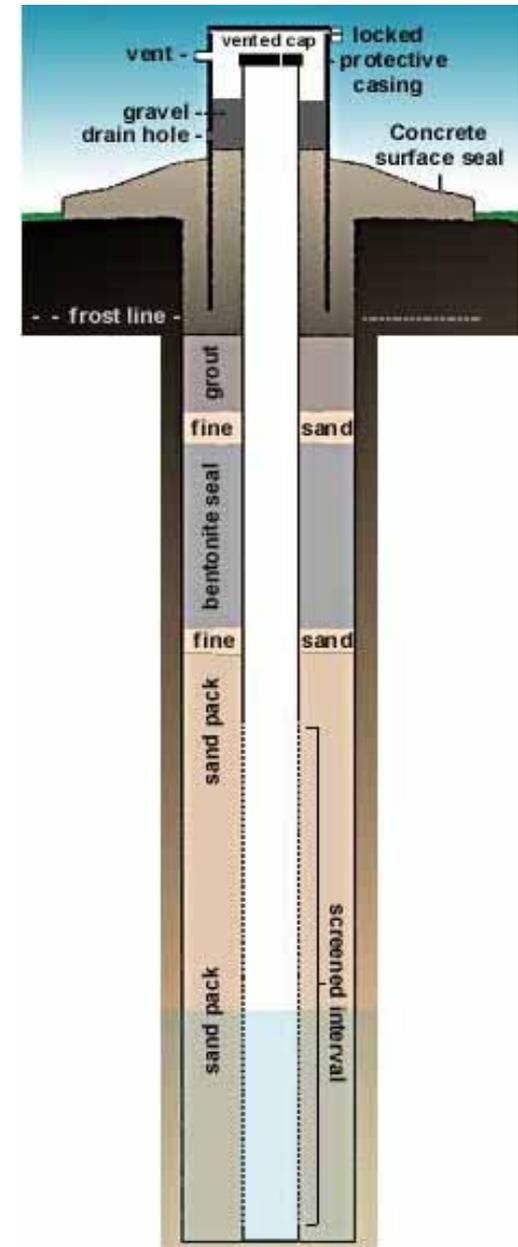


Inset Map Scale: 1:1000

Phase Two



- Groundwater grab samples
- Soil borings
- Install new groundwater wells



Phase 3

- Install and sample minimum of 7 seep stations
- Expose old piping and sample pipe contents
- Soil sampling near the piping based on groundwater grab sample results
- Soil sampling around hot spots
- Some soil removal

Phase 4

- As needed, install additional wells
- As needed, sample groundwater for volatile organic compounds

Phase 5

- Design and begin a quarterly groundwater and seep monitoring program

Expected Submittals from Rayonier

- Phase 1 data – October 2010
- Phase 2 data – November 2010
- Phase 3 data – January 2011
- Phase 4 data – February 2011
- **Draft technical memo** – April or May 2011



Next Steps



Harbor Sediments Information

- Additional data within the Study Area
 - Rayonier dock
 - Ennis Creek area
 - Outfall
- Will help set cleanup levels for the harbor

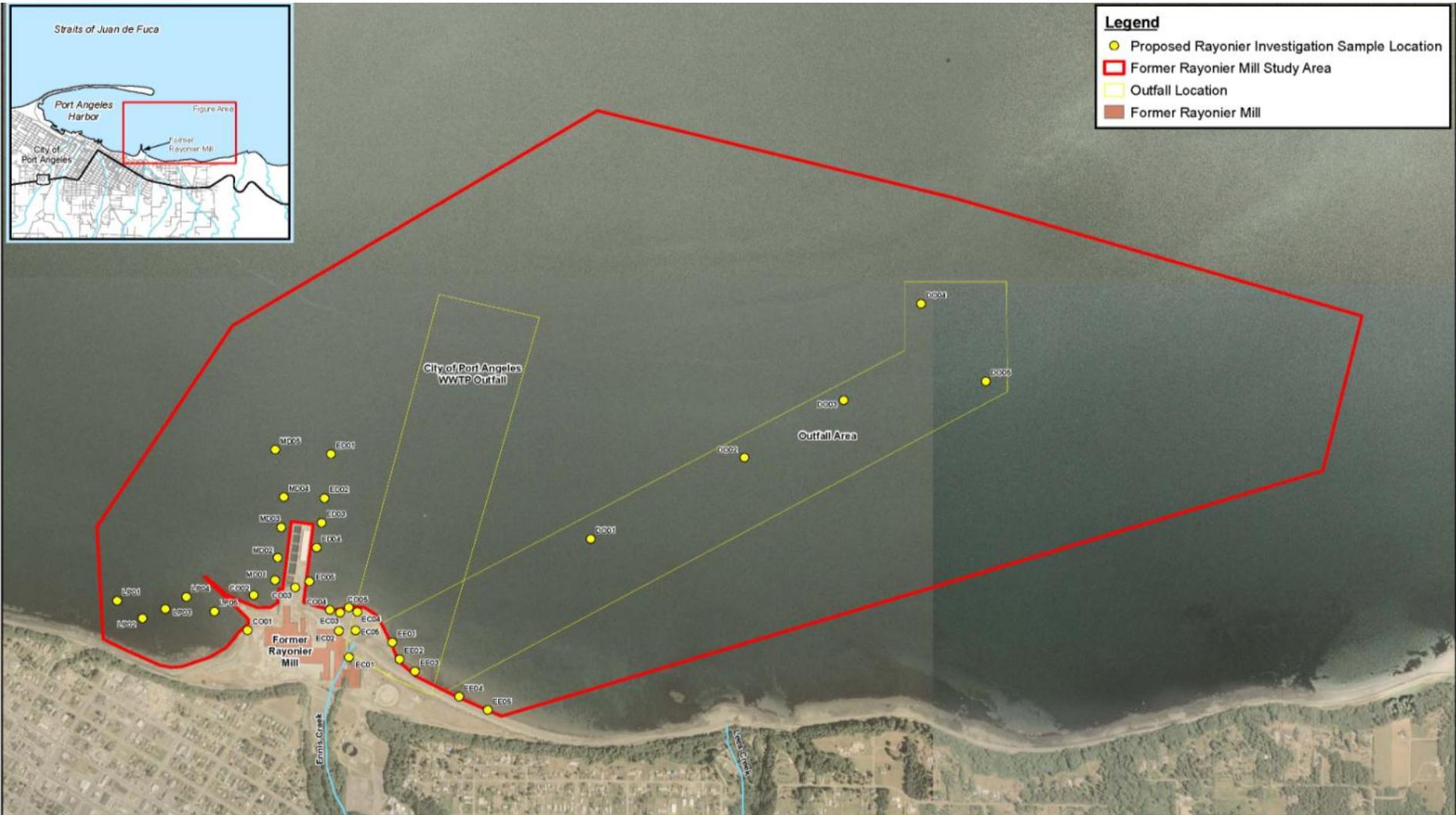


Figure 4-2a

Port Angeles Harbor, Washington

Former Rayonier Mill Study Area
and Proposed Sample Locations

Study Updates

Study Objectives

- Broad assessment of pollution in harbor sediments.
- Human health and ecological risk assessment.
- “Fingerprinting” pollutants to help determine their source
 - Help define the extent of contamination associated with the Rayonier Mill site

Sampling Overview

Sample type	Number of stations	Depth	
Surface	113	Upper 30 cm	Bioassays, some chemical analysis
Subsurface	57	4 or 12 ft	Depth depended on presence of wood waste, Up to four intervals in each core
Tissue	12 Harbor 6 Study Area 3 Dungeness		Lingcod, horse clam, geoduck, eel grass, or bull kelp

Analyzed for: TOC, grain size, SVOCs, resin acids/guaiacols, PCBs, pesticides, dioxins and furans, TPH, TBT, SMS metals, sulfides, ammonia

Exceedances

- Metals
- Dioxins and furans
- Resin acids/guaiacols
- Polychlorinated biphenyls (PCBs)
- Pesticides
- Semi-volatile organic compounds (SVOCs) including PAHs, phenols, and phthalates
- Ammonia, sulfides, and total organic carbons

Sediment Investigation Report

2008

- Field sampling

2009

- Preliminary drafts and rewrites
- Budget and contract negotiations

2010

- Agency review draft received
- Review by Ecology and SAIC
- Comment preparation
- Comment discussions with LEKT and SAIC

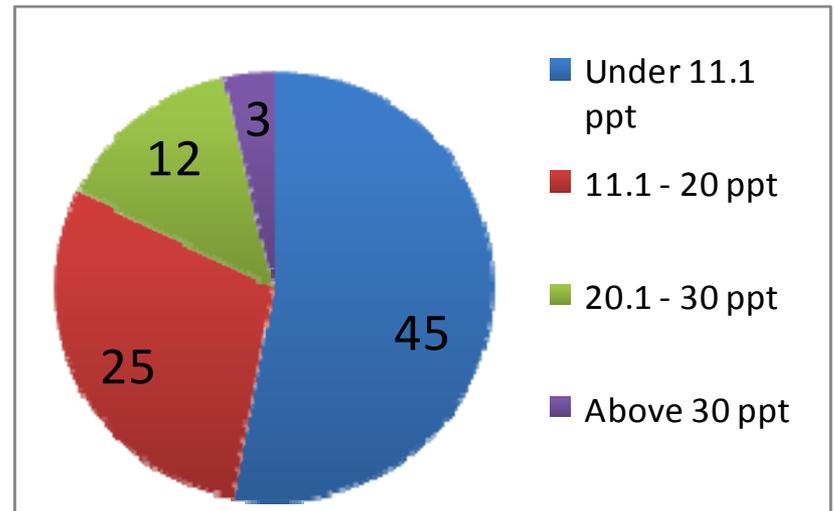
Next Steps

- Strategy for report completion
- Deliver comments to contractor
- Public review draft

- Ecology prepares Preliminary Cleanup Goals
- Rayonier will prepare Final Marine Data Summary using Final Sediment Investigation Report and Preliminary Cleanup Goals

Soil Dioxin Study Review

- Sampling - August and November of 2008
- Preliminary results – February 2009
- 85 total samples
 - 61 grid (residential)
 - 13 forested
 - 2 road
 - 9 upslope



- 40 of 85 samples exceeded 11.1 ppt

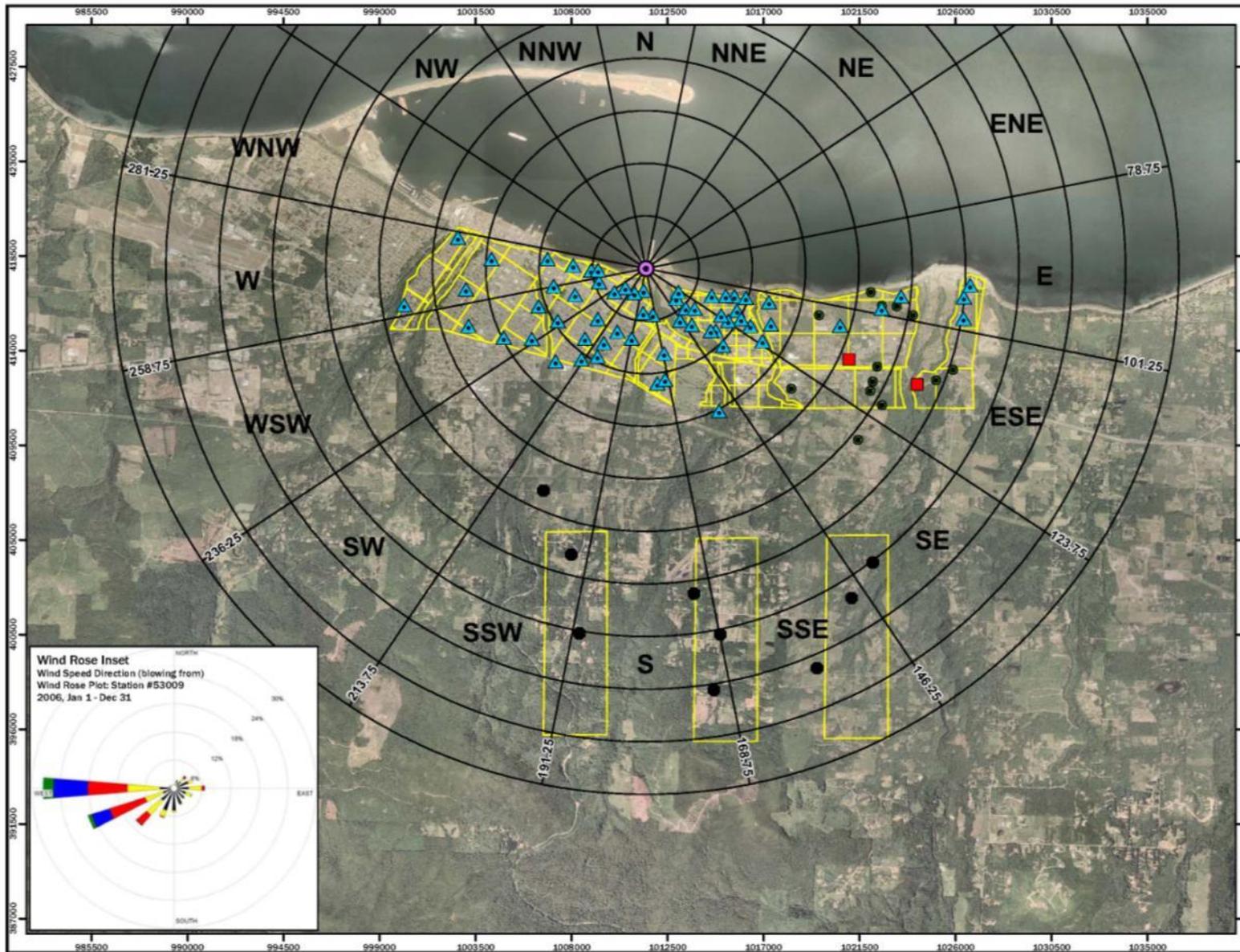


Figure 3-7
 Study area showing sample locations and wind and compass roses with former Rayonier Mill hog fuel boiler as point of origin. Rayonier Mill Off-Property Soil Dioxin Study Port Angeles, WA.

Legend

- Grid cell boundary
- Collected sample**
 - Forested
 - Grid
 - Highway
 - Transect
 - Former hog fuel boiler
- Wind Rose Inset**
- Wind speed (knots)**
 - >=22
 - 17 to 21
 - 11 to 17
 - 7 to 11
 - 4 to 7
 - 1 to 4
- Calms: 0.55%



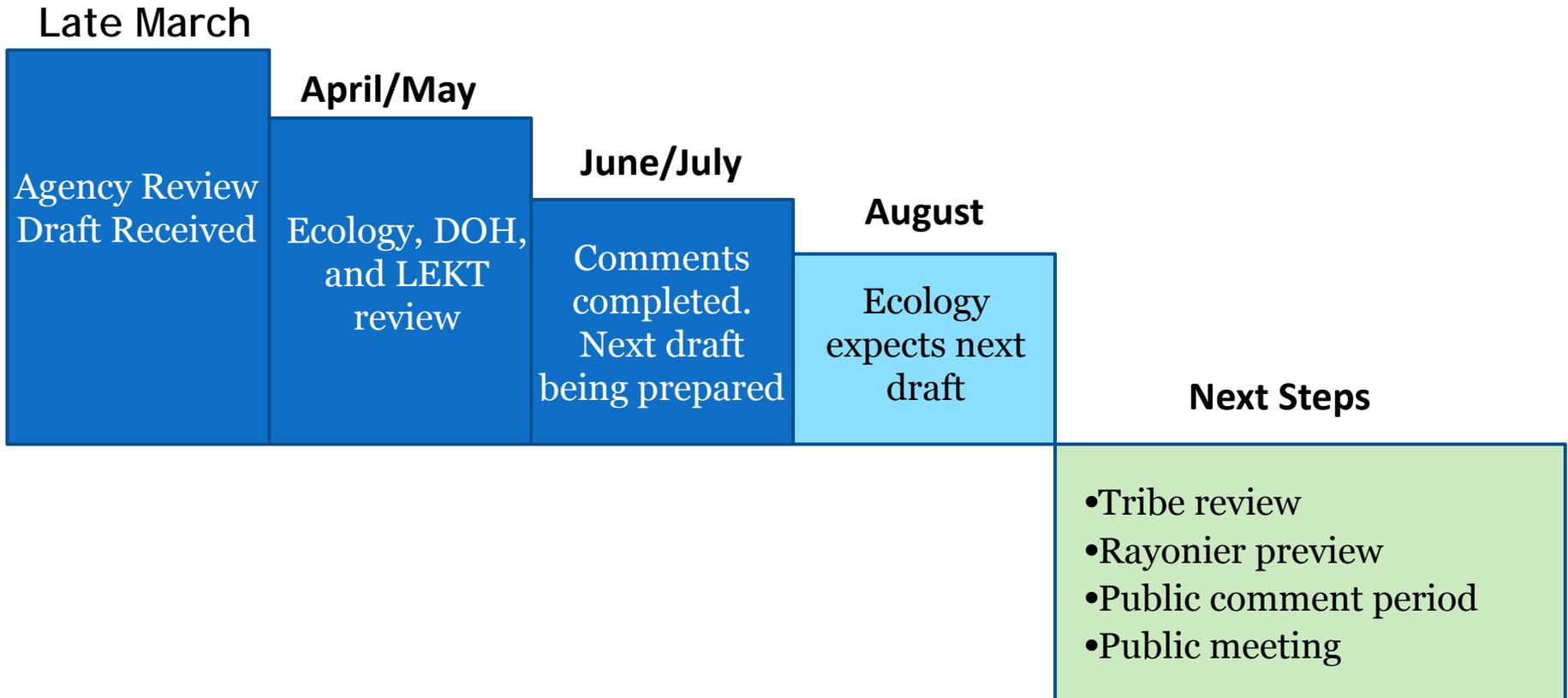



Coordinates: Washington State Plane South
 NAD 83 (feet)
 Aerial: USDA, 2006



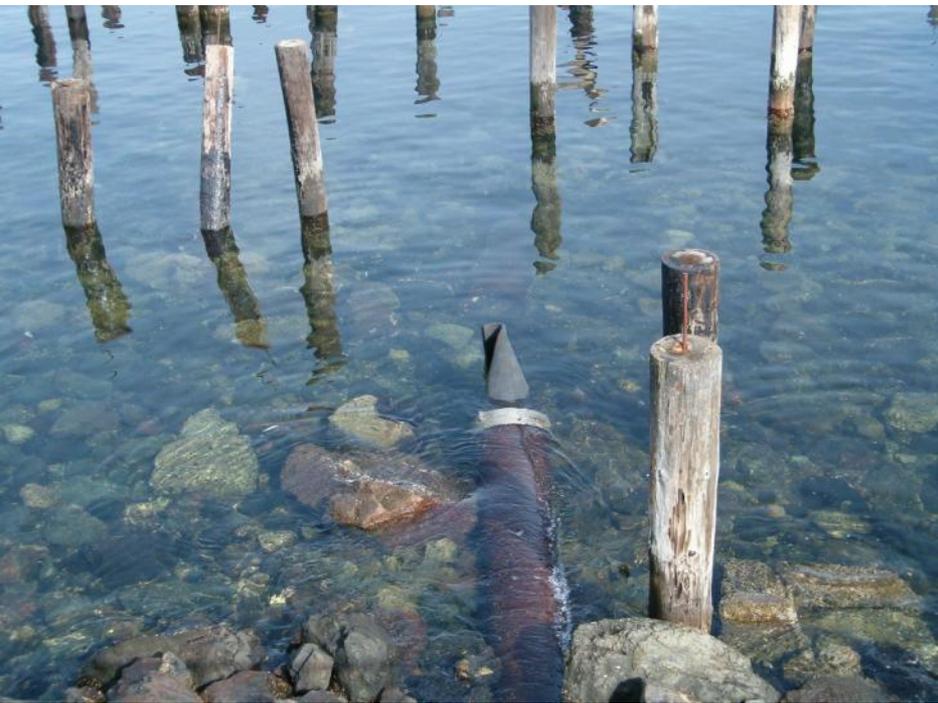
Project: 10-22884-000, Project Overview Plan, Report and

Progress and Next Steps



Related Work

CSO Realignment Support



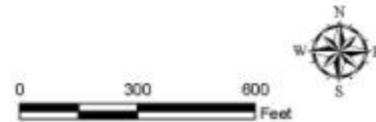
- Ensures any needed cleanup is done during pipe placement.
- Ecology providing technical review.



LEGEND

- ◆ Exploration Locations
- Remedial Action Areas

This figure has been modified by Brown and Caldwell from the original Shannon & Wilson figure dated September 2009



Port Angeles
Washington

Borehole Location Map

December 2009

21-1-20617-002

SHANNON & WILSON, INC.
ENGINEERING AND ENVIRONMENTAL CONSULTANTS

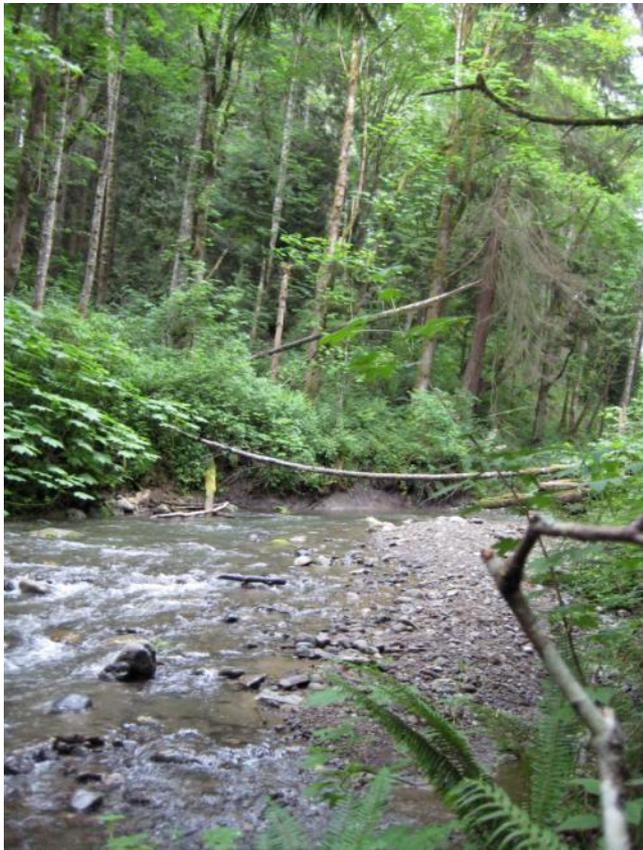
Figure 2

Potential Issues



- Worker exposure to contamination
- Disposal of excavated soils
- Limiting future cleanup options around the pipe alignment

Ennis Creek Restoration



- Lower Elwha Klallam Tribe and Rayonier conceptual plan
- Restoration can be integrated with cleanup and considered at the alternatives evaluation stage



Questions?