Cornwall Avenue Landfill

Draft Remedial Investigation/Feasibility Study

Photo: 2006

Public Meeting & Open House – August 28, 2013

Meeting Agenda

7:00 – 7:15 **Meeting Purpose & Process** –
Dustin Terpening, Ecology

7:15 – 7:25 **Site History & Environmental Conditions** –
Brian Gouran, Port of Bellingham

7:25 – 7:45 **Site Cleanup** –
Mark Adams, Ecology

- Cleanup Goals
- Establishing Cleanup Levels
- Remedial Alternatives
- Evaluation of Alternatives

7:45 – 8:00 **Closing and next steps** – *Mark Adams, Ecology*

8:00 – 8:15 **Questions and answers**

8:15 – 8:30 **Open house**

Project team also includes representatives from the City of Bellingham and Washington State Dept. of Natural Resources

Meeting Purpose

- To provide information on Draft Remedial Investigation and Feasibility Study for the Cornwall Avenue Landfill by:
  - Providing information on the site history and conditions
  - Providing information on the range of remedial alternatives evaluated
  - Providing information on the preferred remedial alternative
- To provide opportunity for public to ask questions and obtain additional information on the site and the process

Cornwall Landfill Site Location

Site Environmental Documents

- **Agreed Order No. 1778 for RI/FS**
  February 2005
- **Ecology Sediment Site Characterization Report**
  June 2009
- **First Amendment to Agreed Order No. 1778**
  August 2011
- **Cornwall Interim Action Plan**
  August 2011
- **Supplemental Groundwater Investigation Work Plan**
  June 2012
- **Interim Action Completion Report**
  August 2012
- **Public Review Draft RI/FS**
  DRAFT *August 2013*

https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=220

State Cleanup Process

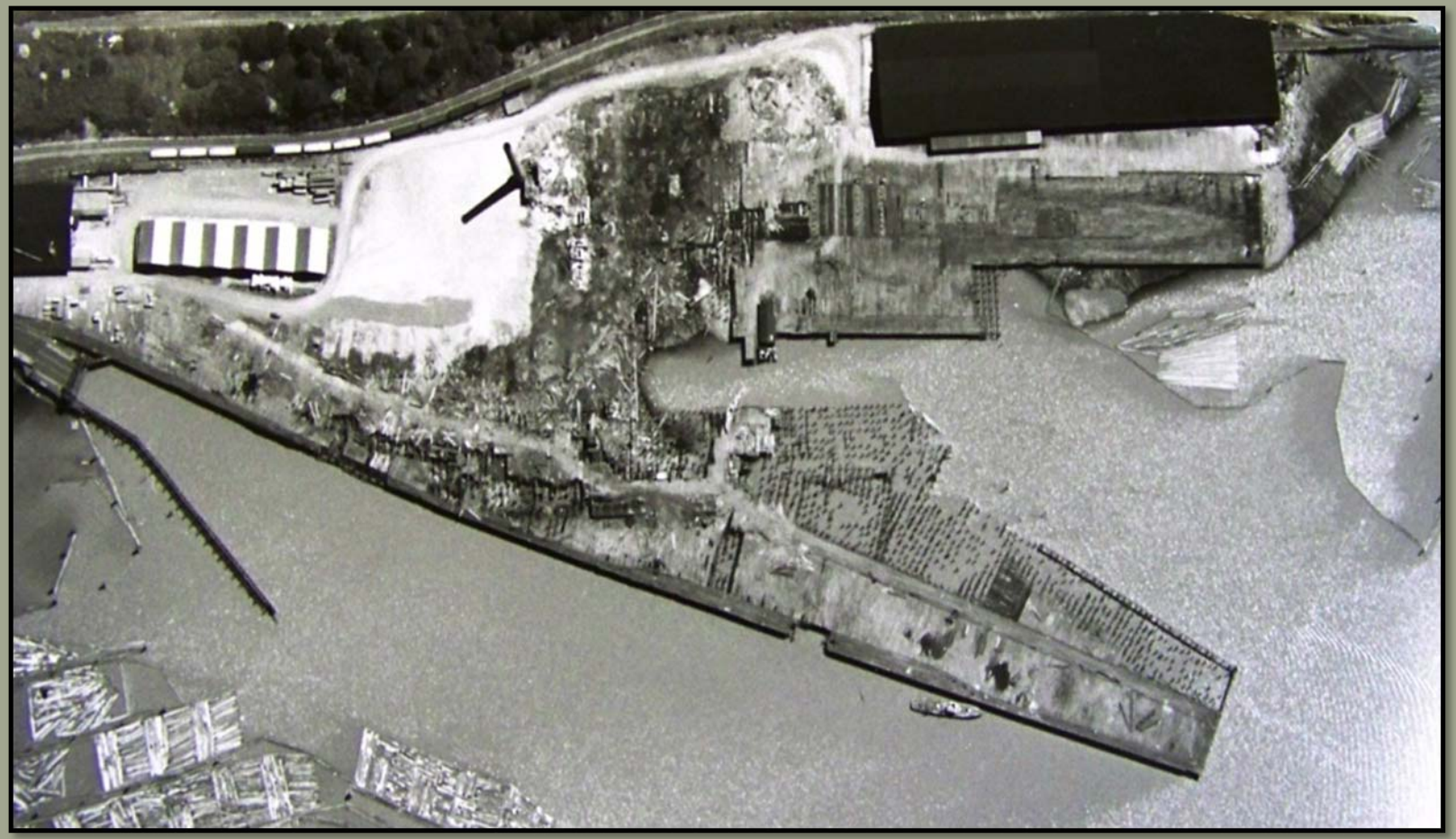
- Initial Site Assessment
- Remedial Investigation/ Feasibility Study (RI/FS)
- Interim Actions (if necessary)
- Consent Decree & Cleanup Action Plan
- Remedial Design, Permitting, Construction, and Monitoring

Site History & Background

- **Historic operations**
  - **1800s to Late 1940's** - Sawmilling
  - **1953 to 1965** – Municipal Waste Landfill
  - **1950's-2005 -** Timber Production**,** Warehousing & Log Storage
  - **2005 – Present –** Vacant Industrial Land
- **1992** - Ecology Site Listing
- **1992 to Present** –
  - RI/FS Activities under Agreed Order
  - Interim Action (2010-2011)
- **Current Property Ownership**
  - City of Bellingham
    State of Washington
    (Managed by Department of Natural Resources)

- **Part of Waterfront District Master Plan**
- **Cornwall Beach Park Master Plan**

Site History



Remnants of former large scale lumber milling operation

1950

Site History

City of Bellingham municipal waste operations

1953-1965

Site History

Closed landfill and timber operations

1969

Site History

Warehousing and log yard

1994

Site History

Vacant industrial land

2006

Interim Action

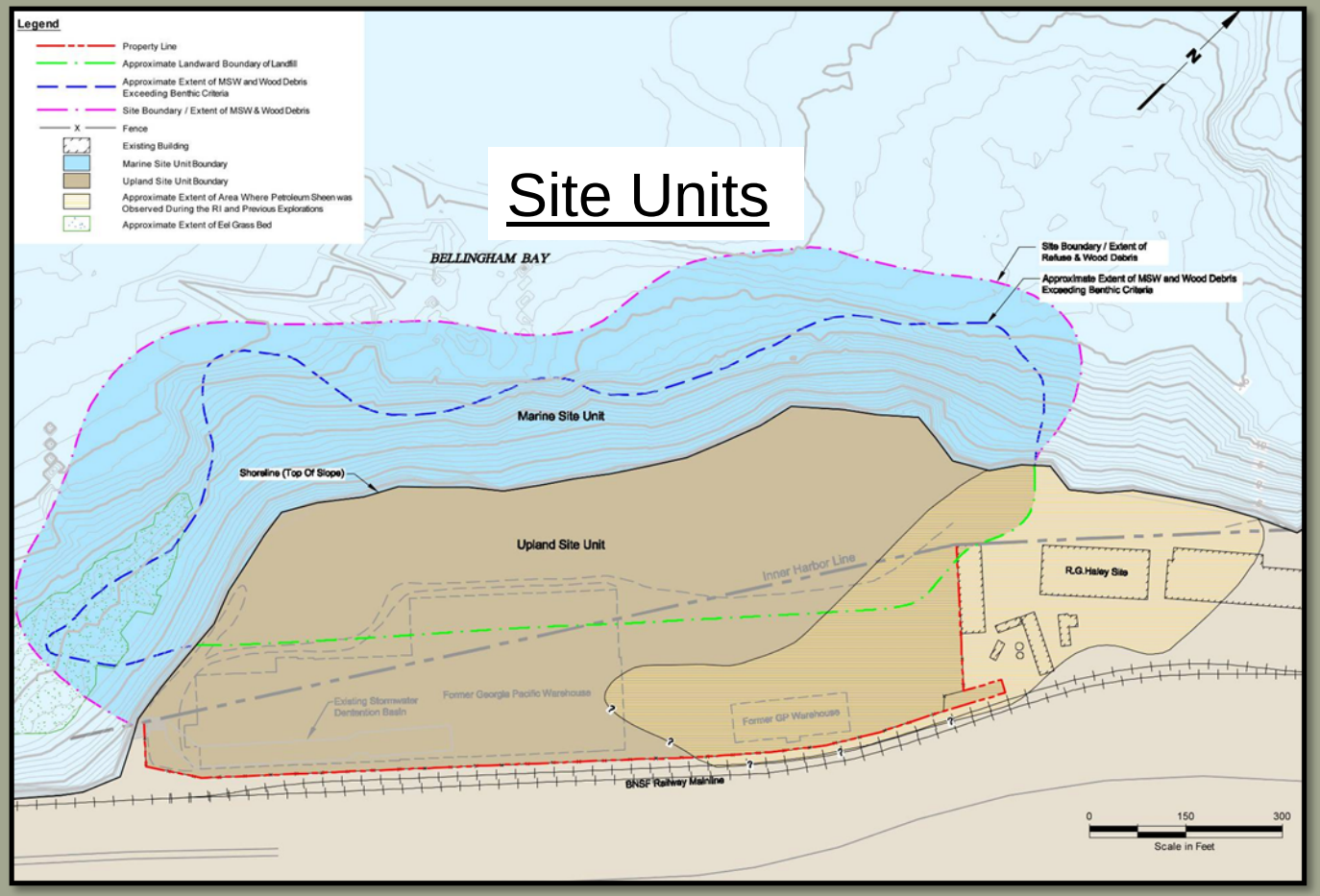
- 47,000 c.y. of sediment
  - Squalicum Harbor maintenance
  - Low permeability limits infiltration
  - Dioxin/Furans present
- Landfill gas collection system

Current Conditions

Post Interim Action

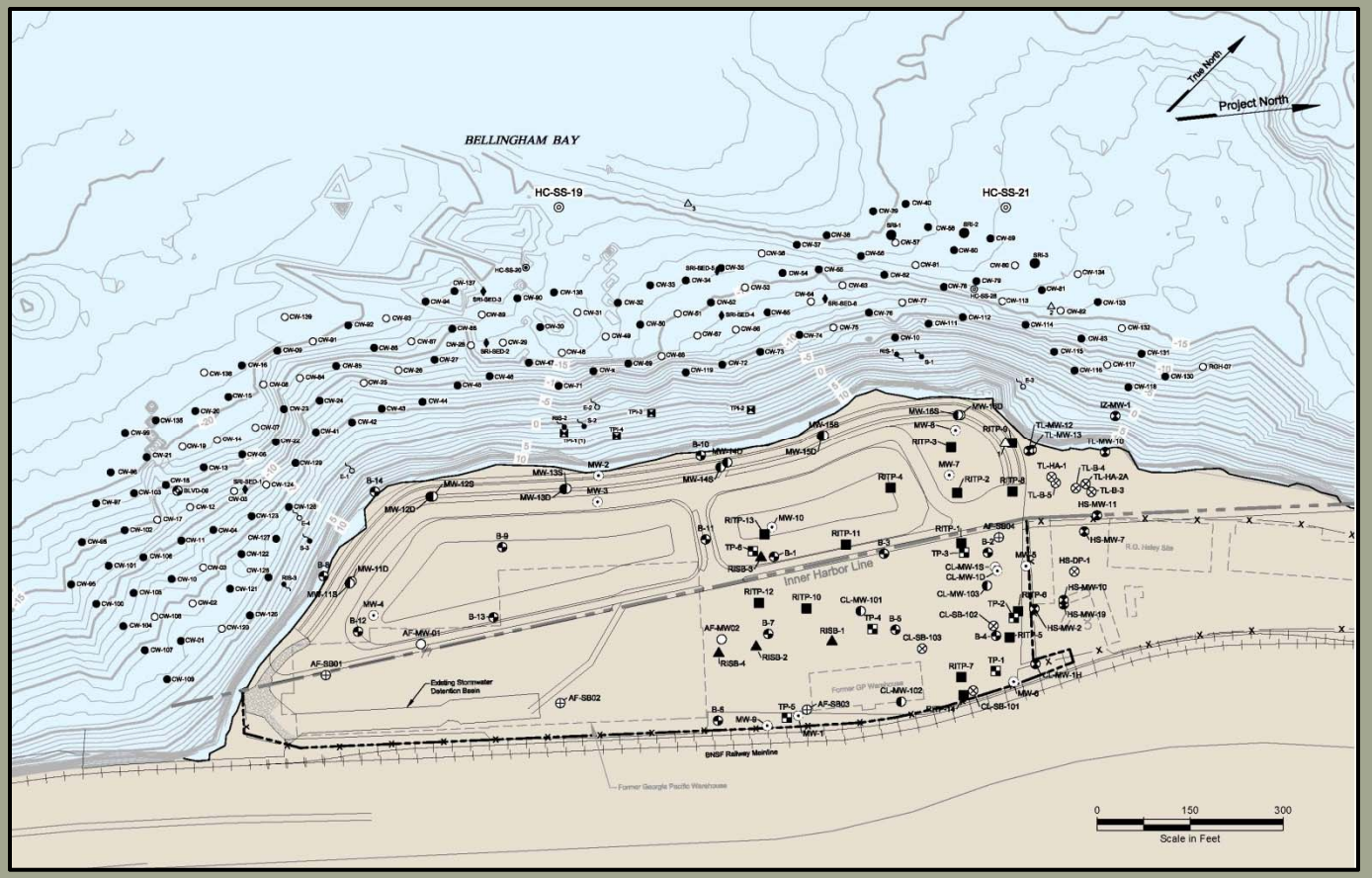
2013

Environmental Conditions



- Approx. 26 acre site
  - 13.2 acres upland
  - 12.6 acres in water
- Approx. 295,000 cubic yards of municipal waste
- Approx. 94,000 cubic yards of woodwaste

Remedial Investigation



- 25 Geotechnical Borings
- 16 Seep samples
- 18 Test pits
- 60 Groundwater Samples
- Diver survey
- 138 Subtidal photos
- 62 Sediment cores
- 31 Monitoring wells

Environmental Conditions

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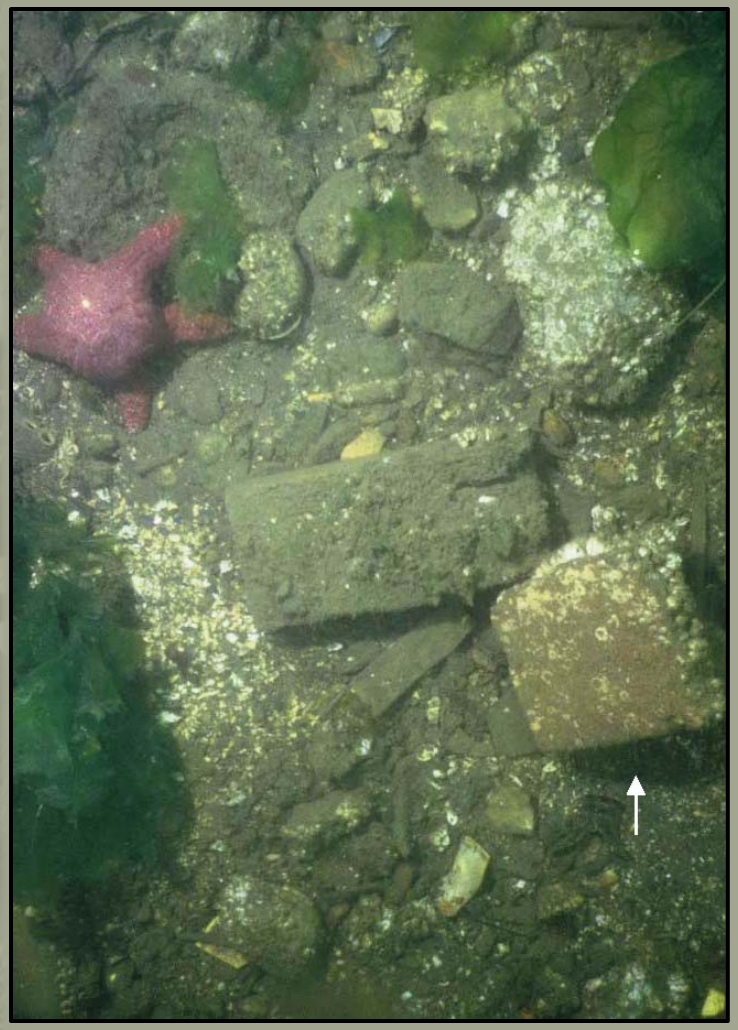
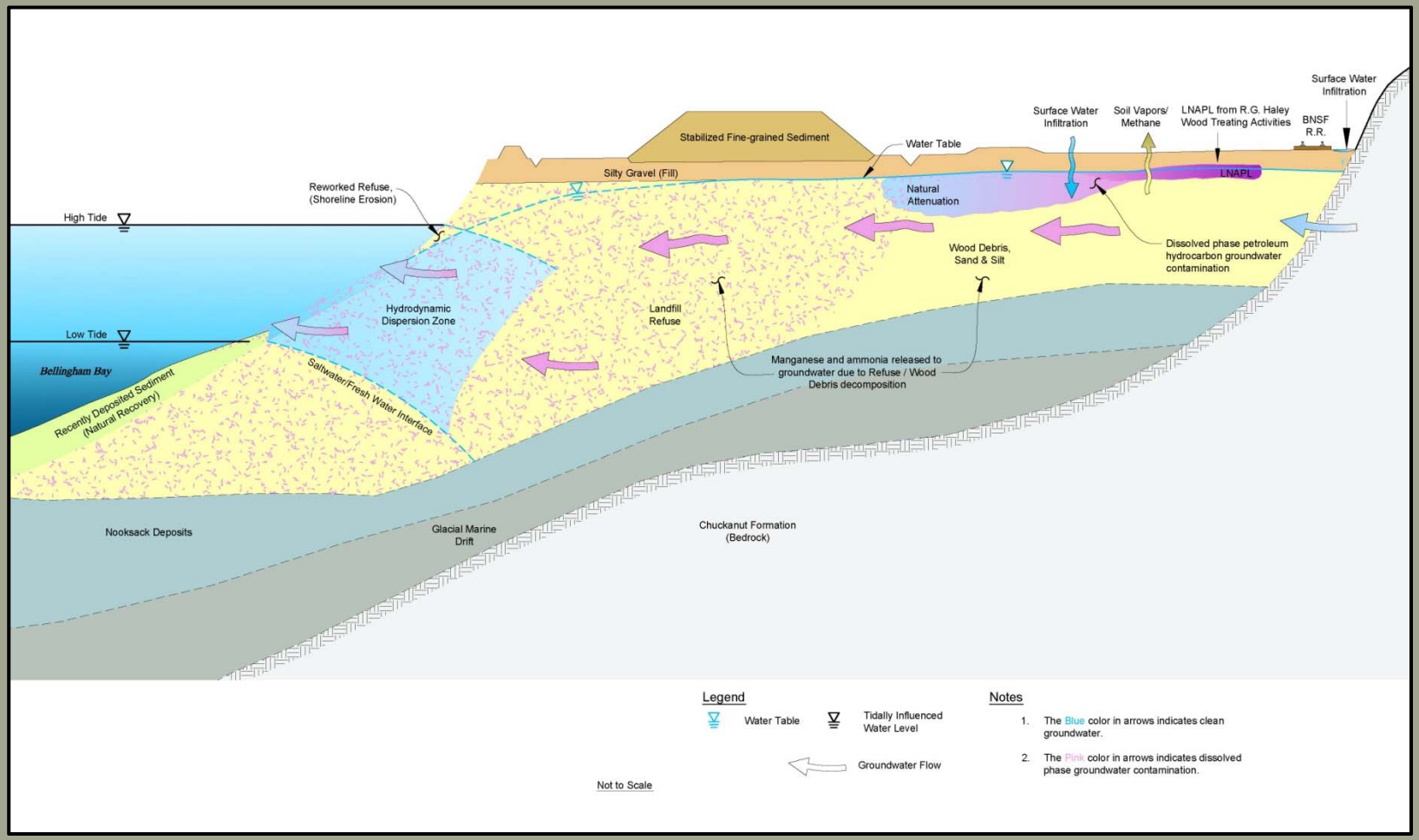
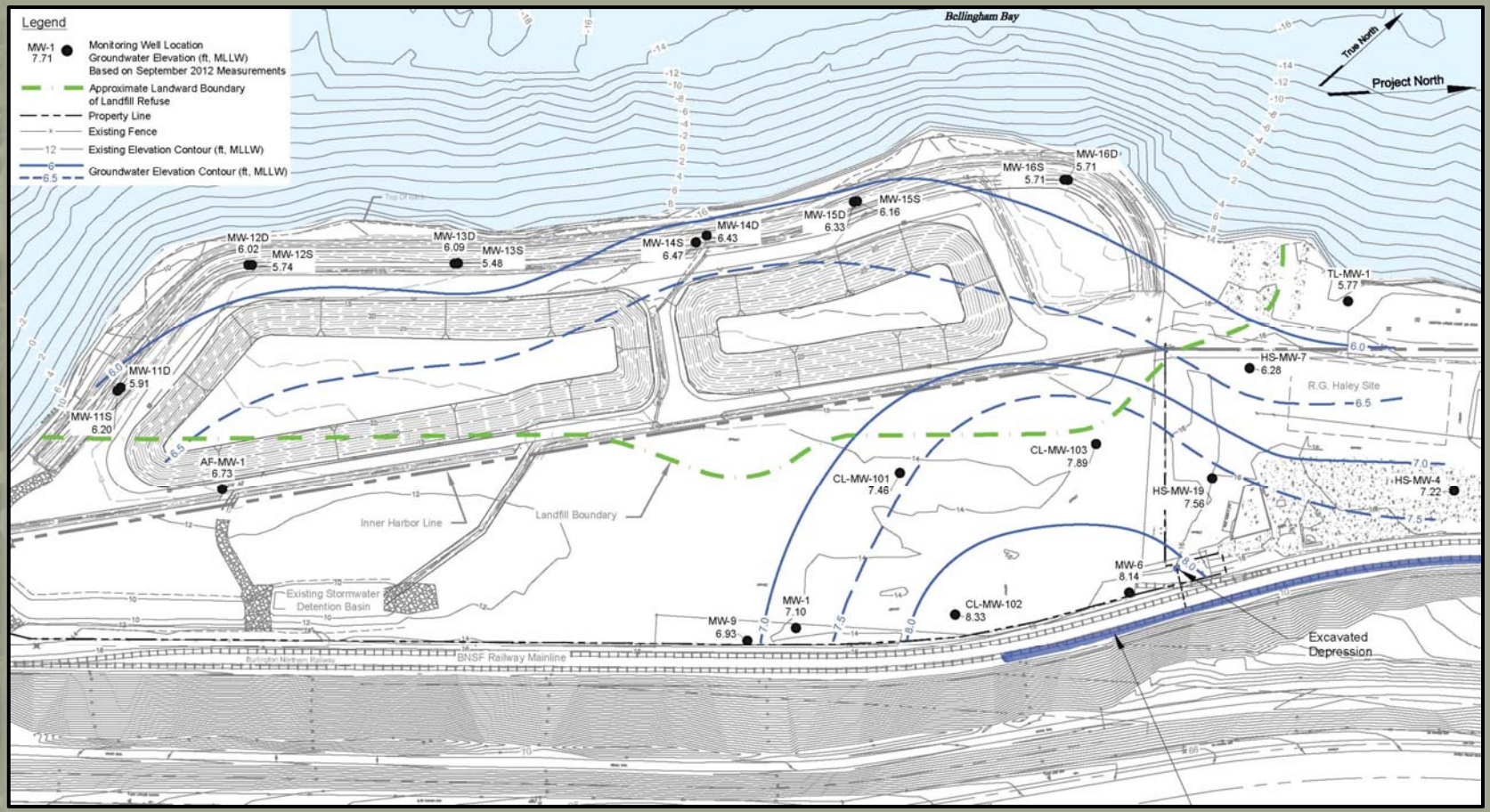


Site Conceptual Model



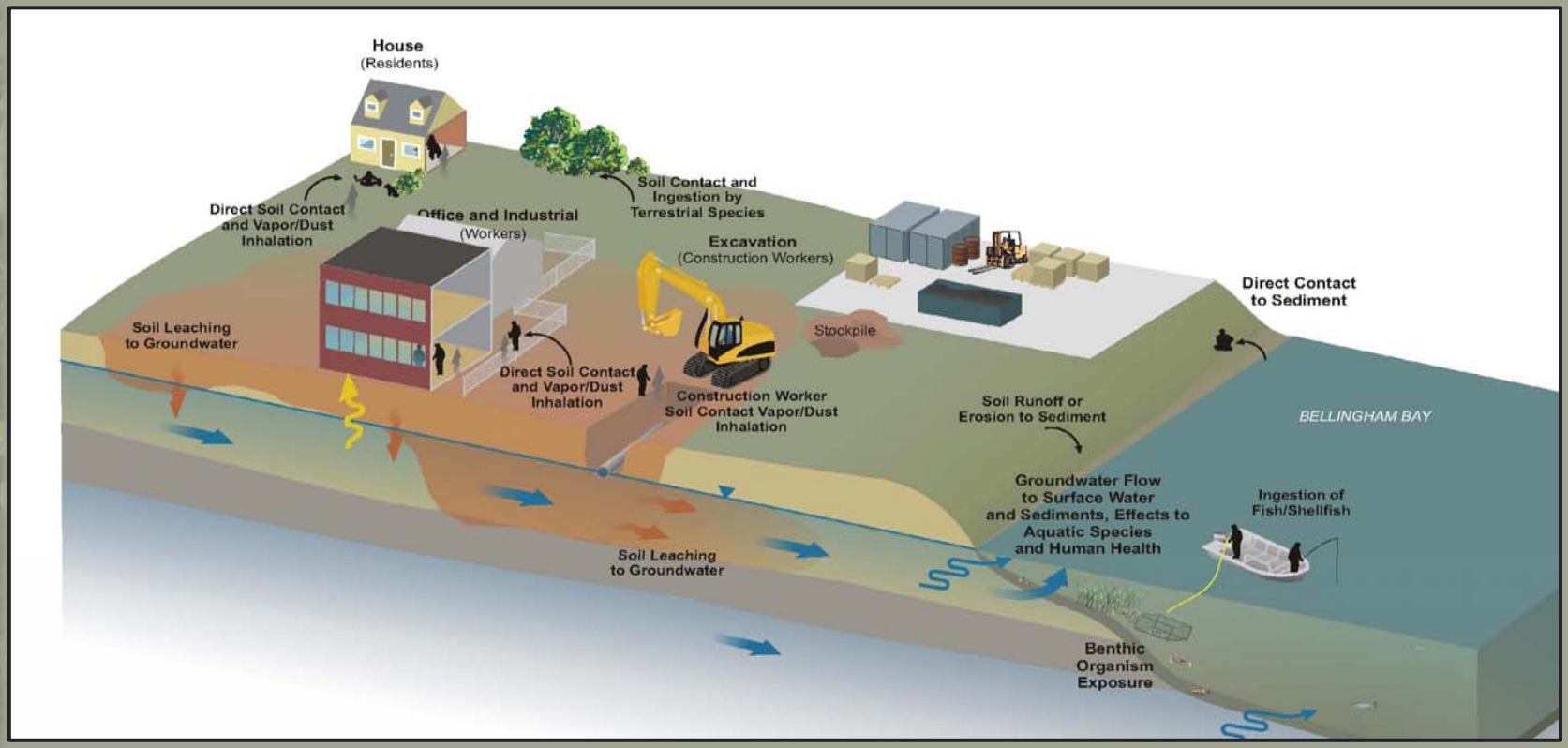
Site Groundwater



Primary Site Contaminants

- **Soil**
  - Municipal Refuse
  - Wood Waste
  - Metals
  - Dioxins/Furans
  - Landfill Gas (Methane, Hydrogen Sulfide etc.)
- **Groundwater**
  - Metals
  - Manganese
  - Ammonia
- **Sediment**
  - Refuse and Wood Waste
  - Metals (Copper, Lead, Silver, Zinc)
  - Semi-Volatile Organic Compounds
  - PCBs

Potential Exposure Pathways



Protection of people, plants and animals

Establishing Cleanup Levels

- **"Soil"- Assumed Contaminated**

Need Physical Protection

  - Protection against contact
  - Protection against leaching
  - Protection against erosion
  - Protection against gas explosions

- **Groundwater**

Need Chemical Values

  - Protect sediment
  - Protect surface water in Bellingham Bay
    - Human seafood ingestion
    - Aquatic species

- **Sediment**

Need Chemical Values

  - Protect species that live in the sediment
  - Protect aquatic species from bioaccumulation
  - Protect humans from bioaccumulation

Cleanup levels will allow for unrestricted landuse of Site

Compounds Exceeding Preliminary Cleanup Levels

- **Soil**
  - Refuse & Wood Waste
  - Dioxins/Furans in dredge sediment
- **Groundwater**
  - Manganese
  - Ammonia
- **Sediment**
  - Metals (Copper, Cadmium, Lead, Silver, Zinc)
  - Semi-Volatile Organic Compounds
  - PCBs
  - cPAHs

Evaluation of Alternatives

Minimum Threshold Requirements

(WAC 173-340-360(2)(a))

- Protection of human health and the environment
- Compliance with cleanup standards
- Compliance with state and federal laws
- Compliance Monitoring

“Permanent to the maximum extent practicable”

(WAC 173-340-360(3)(f))

- Protectiveness
- Permanence
- Long-term effectiveness
- Short-term risk
- Implementability
- Public Concerns

Compatibility with adjacent Site cleanups

Cleanup Elements

Common Elements*

Upland:

- Storm drainage improvements
- Landfill gas controls
- Legal covenants

Marine:

- Shoreline stabilization

*Alternatives 1-3 (Containment)

Variable Elements*

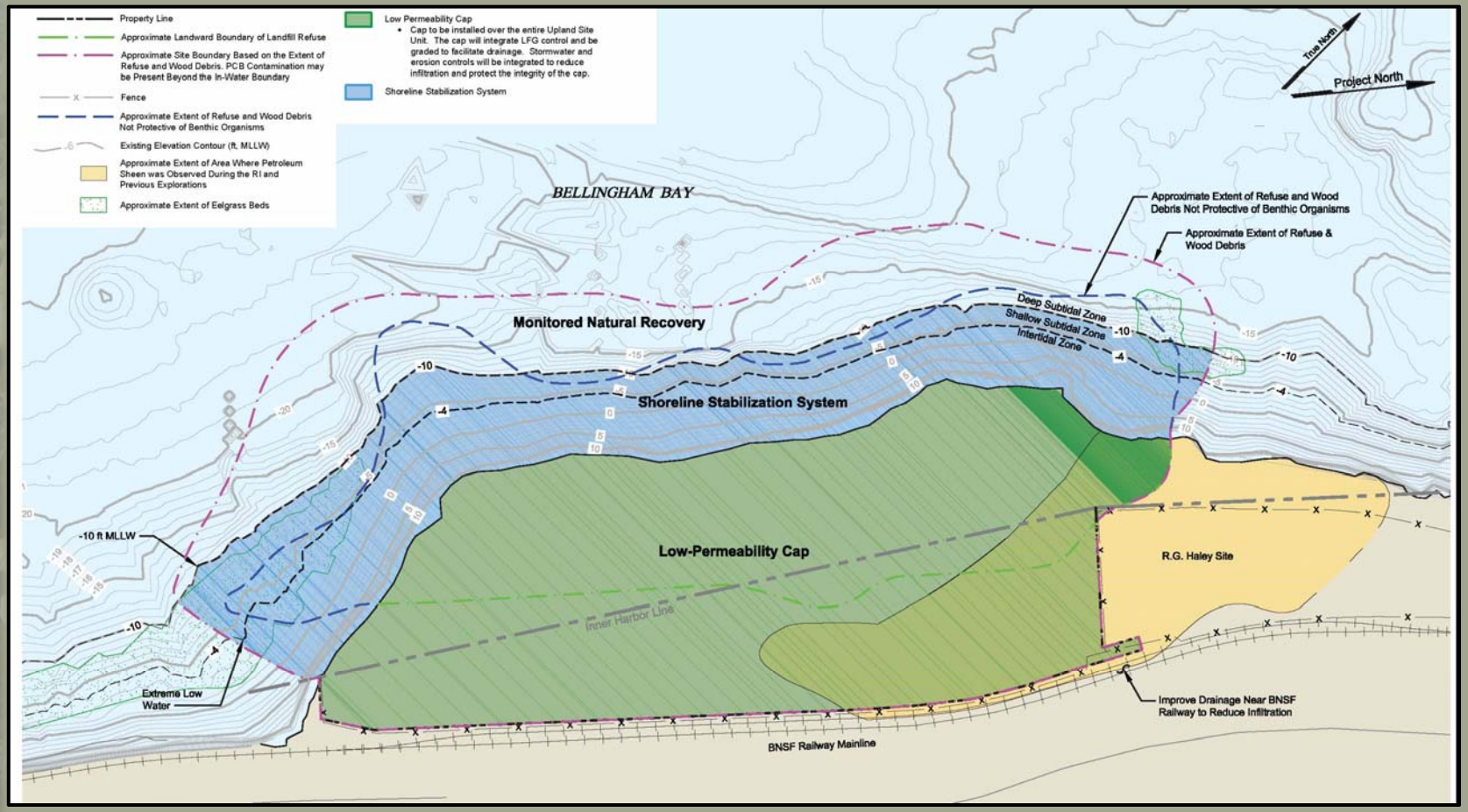
Upland:

- Landfill cap type
- Up gradient groundwater controls

Marine:

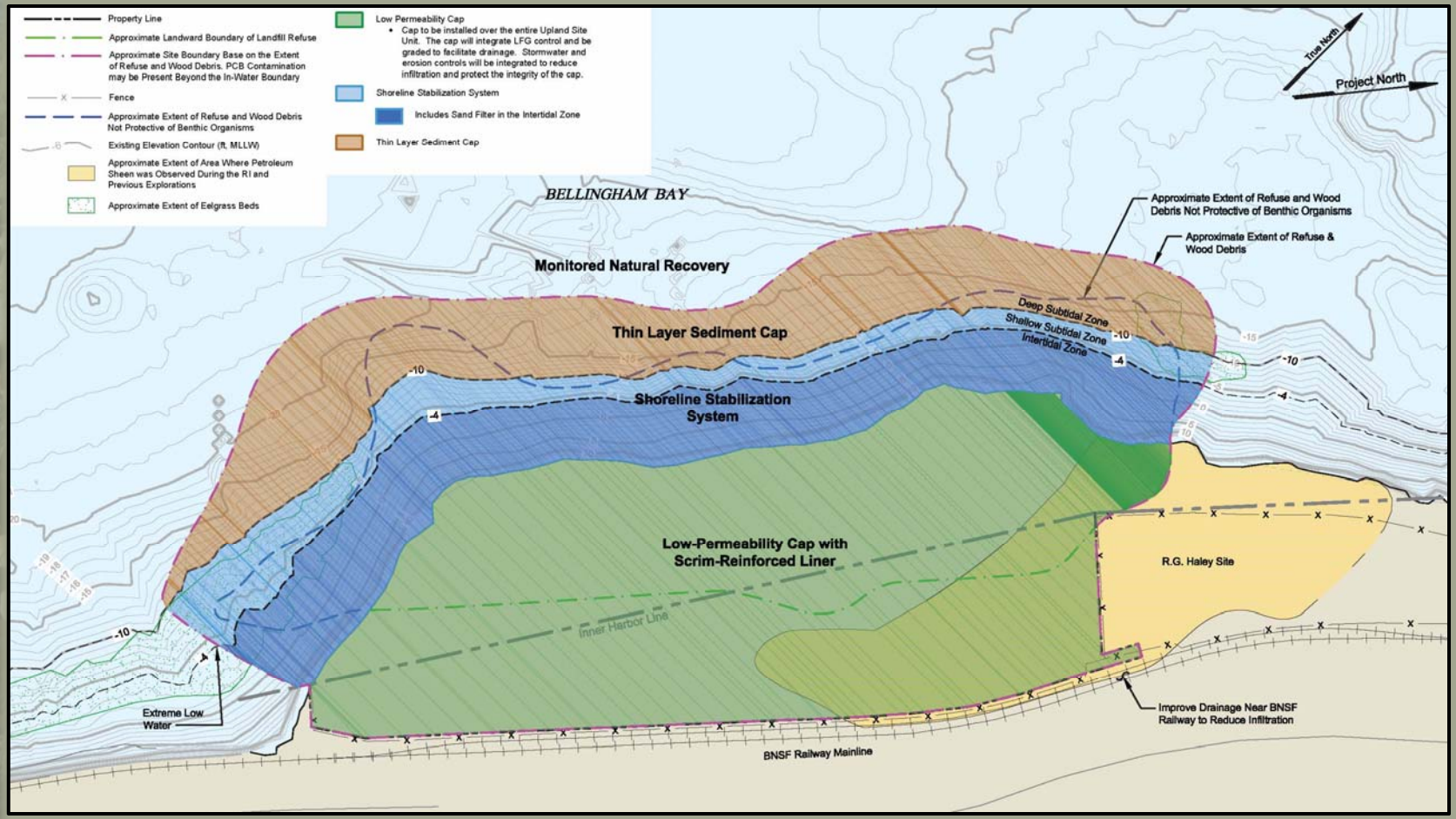
- Sand filter at shoreline
- Type of subtidal sediment capping

Alternative 1



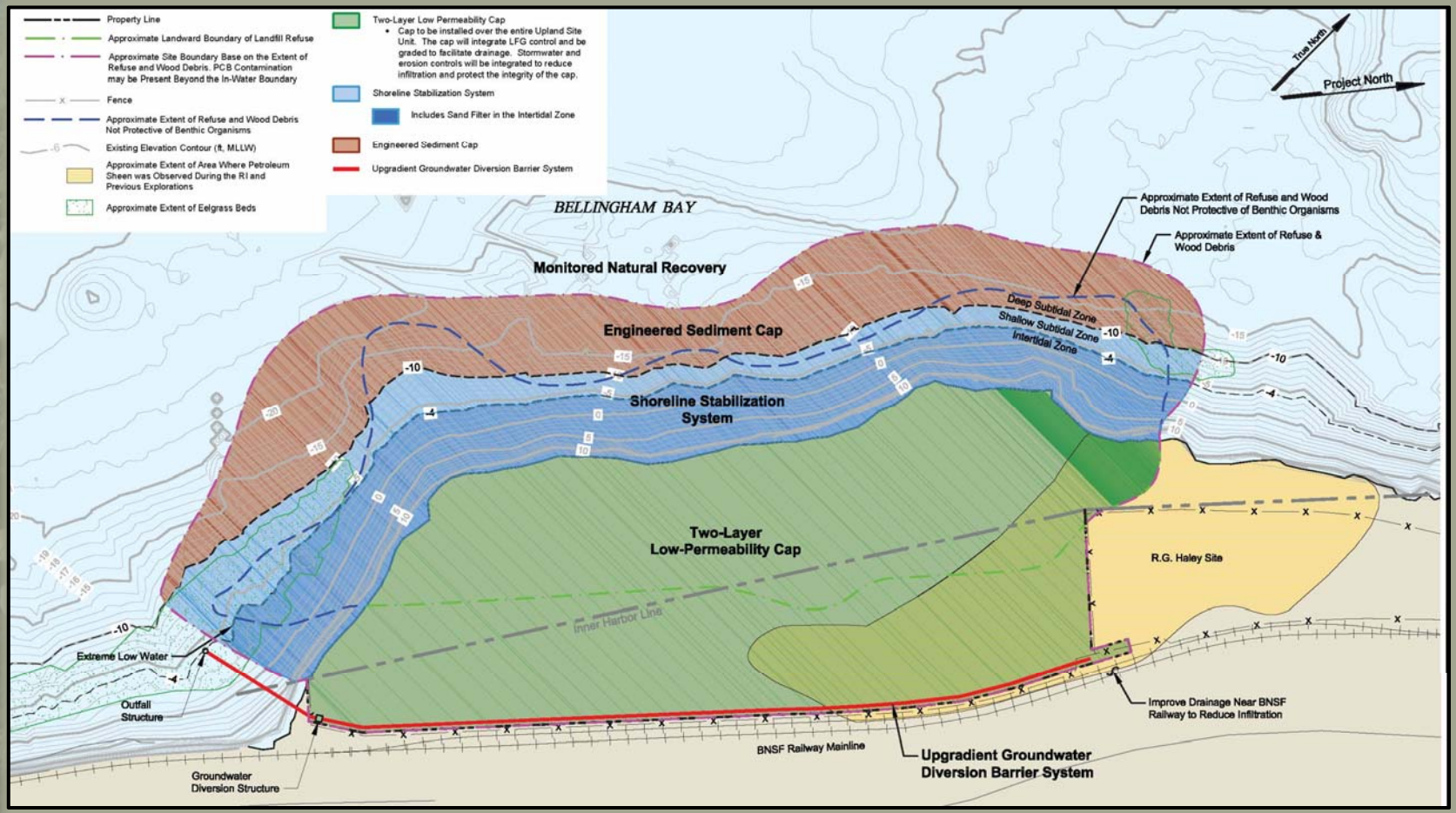
Alternative 1: Containment with upland low permeability soil cap, shoreline stabilization, sediment monitored natural recovery (MNR), landfill gas control and stormwater improvements

Alternative 2



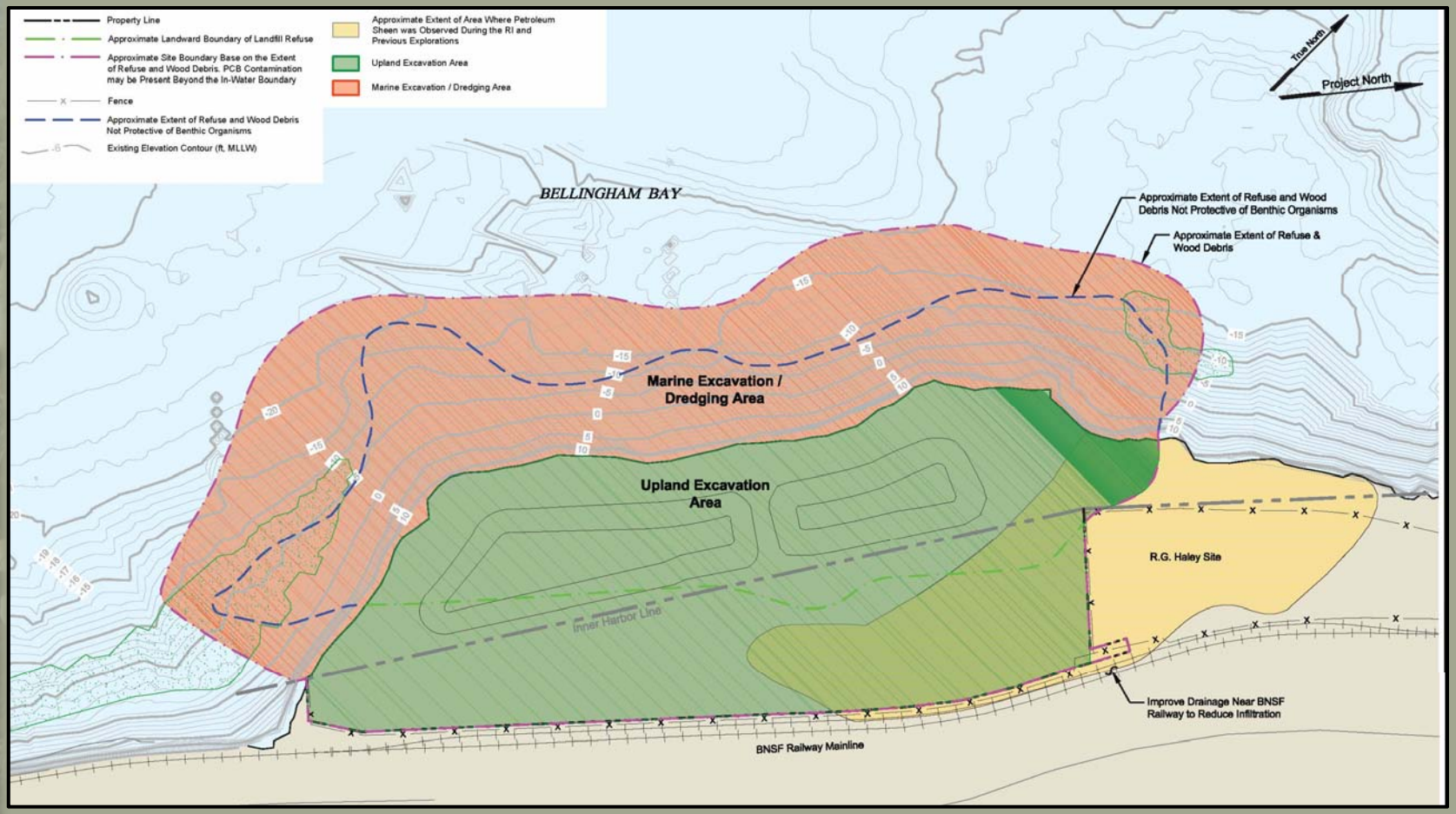
Alternative 2: Containment with upland soil cap and **liner**, shoreline stabilization with **sand filter**, **thin layer sediment cap**, MNR, landfill gas control and stormwater improvements

Alternative 3



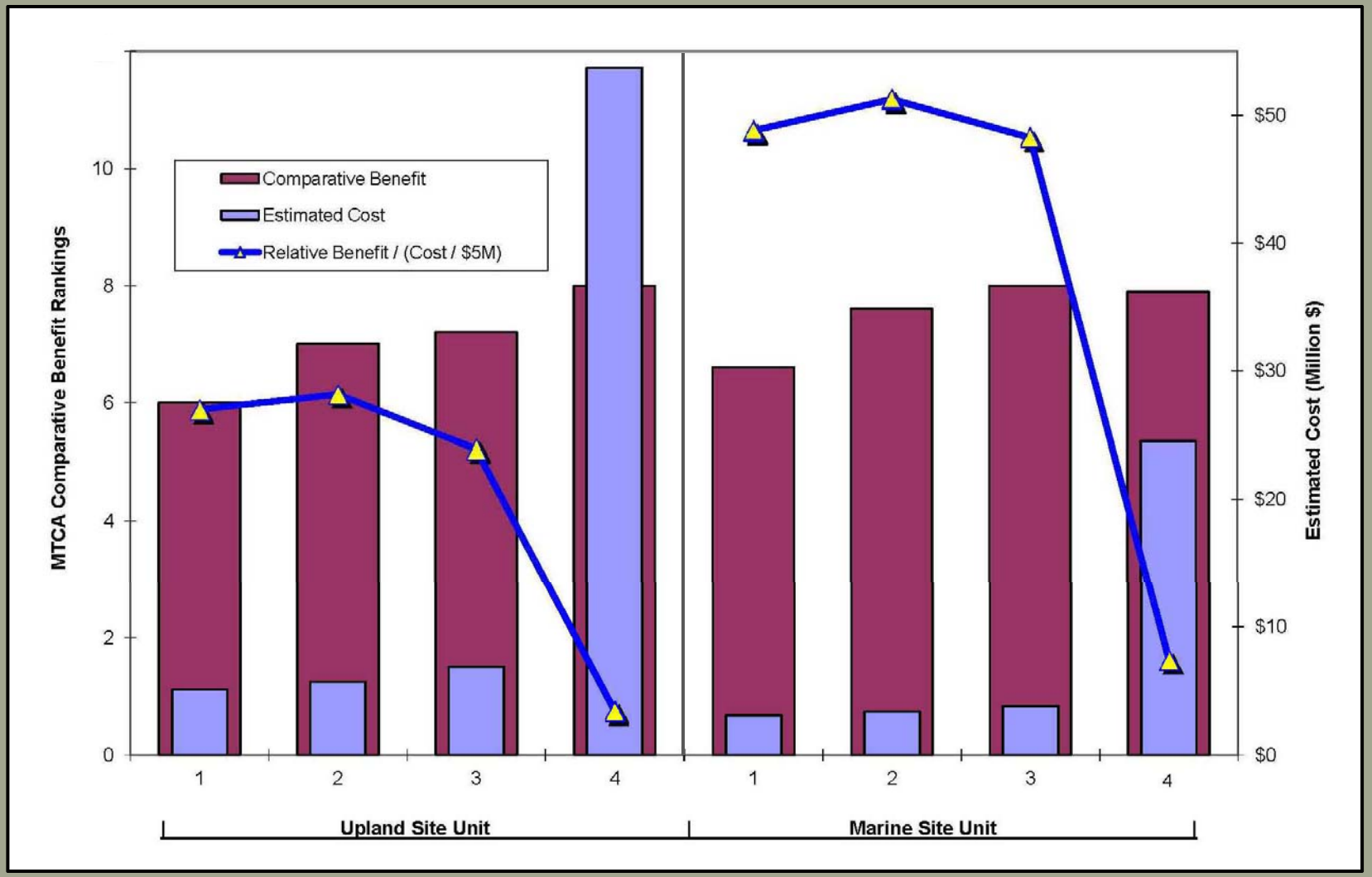
Alternative 3: Containment with upland **two layer cap, upgradient groundwater diversion barrier**, shoreline stabilization with sand filter, **engineered sediment cap**, MNR, landfill gas control and stormwater improvements

Alternative 4

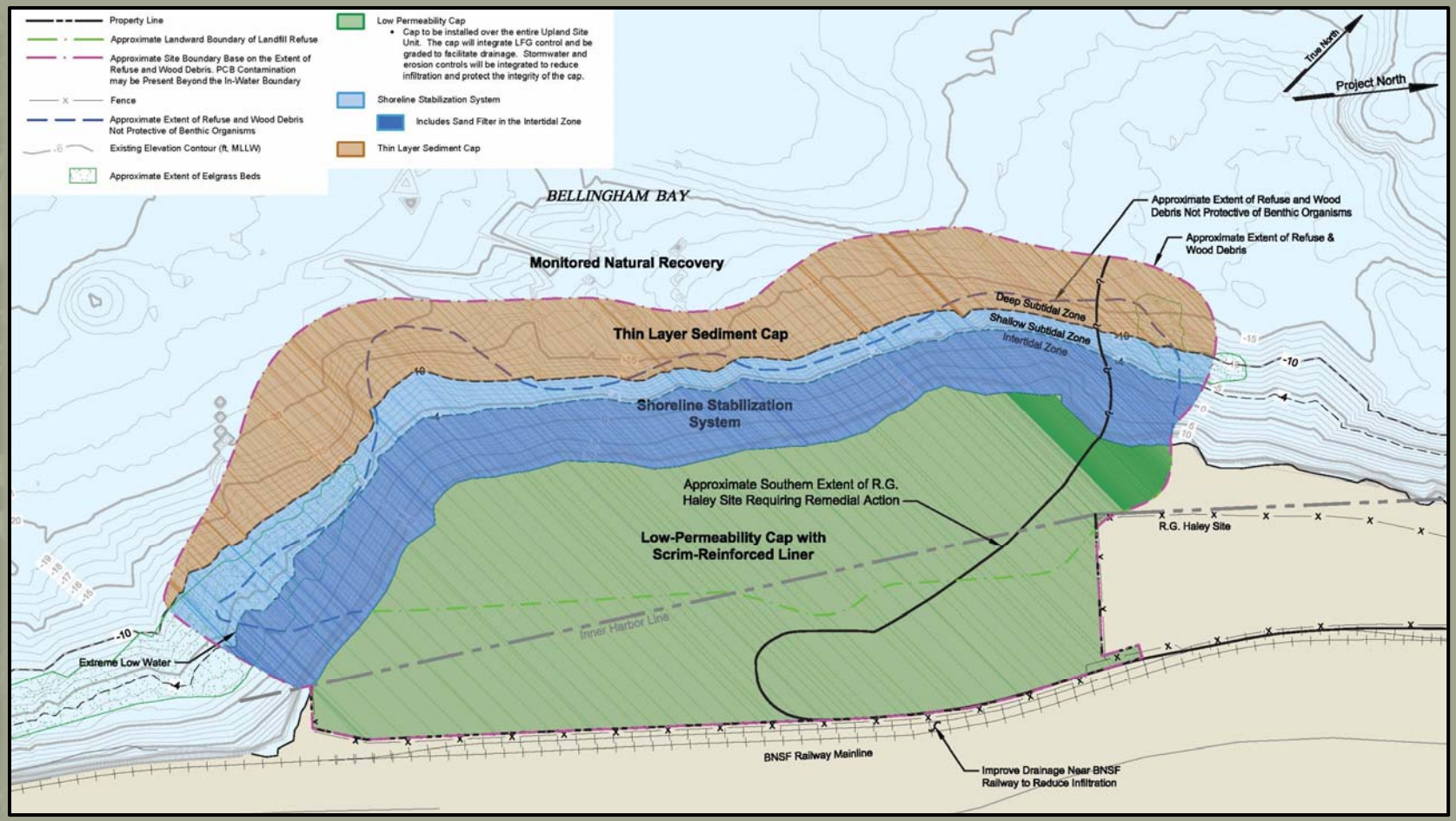


Alternative 4: Complete removal and offsite disposal

Disproportionate Cost Analysis



Preferred Alternative



★ Site-specific engineering will detail specific cleanup design components and will be coordinated with park master planning efforts

Ecology Wants Your Comments

- Document Availability
  - Ecology's Web Site **https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=220**
  - Document Repositories
    - **Bellingham Library - Main Branch**
    - **Ecology's Bellingham Field Office - Fairhaven**
    - **Ecology's Northwest Regional Office – Bellevue**
- Submit Comments by **September 20, 2013**
  - Ecology will prepare response to comments after public comment period