

Memorandum

To: Ravi Sanga, US Environmental Protection Agency

From:



Nancy Judd, Windward Environmental on behalf of the East Waterway Group

CC: Doug Hotchkiss, Port of Seattle; Pete Rude, City of Seattle; Jeff Stern, King County; Debra Williston, King County; Tom Wang, Anchor Environmental, L.L.C.

Date: October 24, 2008

Re: Human Access Survey Design

1 INTRODUCTION

This memorandum presents a summary of the objectives and proposed design for the human access survey to support the East Waterway (EW) supplemental remedial investigation (SRI). The development of a human access survey was described in the Conceptual Site Model and Data Gaps Analysis Report (Section 5.1.5) (Anchor and Windward 2008). Knowledge of current and potential future access and extent of accessible intertidal area will be particularly important for selecting the parameters used to evaluate human direct contact exposure scenarios. The purpose of this memo is to present the objectives and study design for the human access survey to be conducted in EW.

The survey will focus on where and how people might access EW intertidal areas to engage in various activities. Although information will be included, as available, on human activities now and in the future (based on known changes that can occur at EW properties), the focus is characterizing access areas rather than a comprehensive investigation of current and potential future human uses at the site. This is consistent with the survey methodology that was used for the Lower Duwamish Waterway (LDW). Human use can be inferred to some extent based on the access survey and therefore, this information will be considered in the development of exposure scenarios. Information about human use (activities) will be described in detail and incorporated into the exposure scenarios as appropriate in the human health technical memorandum. For example, data relevant to development of a clamming scenario obtained during the recent clam field collection effort will be used in conjunction with human access information for development of a non-tribal clamming scenario (tribal members have rights to clam throughout EW) in the human health technical memorandum. Other information (e.g. intended use by property owners, publications by local community groups about current or intended EW use, information from tribes about EW use) relevant to describing human use will also be included in the human health technical memorandum and used in exposure scenario development as appropriate.

Section 2 of this memorandum discusses the objectives of the EW human access survey. In Section 3, current uses of the EW are summarized and evaluated to provide context. The proposed survey methodology is presented in Section 4 and is based on the survey objectives.

2 OBJECTIVES

The primary objective for the human use survey of the EW is to identify human access locations and intertidal shoreline areas where people may come into contact with EW sediment. The human access survey results will be used to characterize the exposure areas for direct contact scenarios that will be evaluated in the HHRA. Knowledge of access and extent of accessible intertidal area will be particularly important for selecting the parameters used to evaluate the beach recreation, tribal and recreational clamming scenarios.

Specific objectives for the human access survey include identification of the following:

- ◆ Each shoreline point of access, categorized by any restrictions (i.e. employee only vs. public) or limitations (e.g., lack of parking, steep banks, riprap)
- ◆ What features or amenities are present that might make use of shoreline/beach areas (those accessible from shore or by boat) desirable (e.g. picnic tables or piers or bridges for fishing)?
- ◆ What types of people are most likely to be exposed at each site (i.e. workers, recreational users, trespassers, tribal members, or some combination of these)
- ◆ Extent of beach accessible from each access point (including potential access via trespassing)
- ◆ Intertidal areas accessible only by boat
- ◆ Parts of contiguous beach that may be accessed legally vs. parts that may require trespass. The boundary of each property bordering the EW and its associated beach area, as well as a description of the shoreline along the property (i.e. bulkhead, riprap, gravel etc.) and inland areas that affect accessibility (e.g., surrounded by industrial property with restricted access.)
- ◆ Inquire with property owners about potential future land use/development and its impacts on intertidal access and use.

3 CURRENT SITE DATA

This section describes the human access locations and intertidal beach areas that are currently documented along the EW. Map 1 provides the parcel boundaries for all properties adjacent to EW and ownership information for those boundaries. The known exposed intertidal areas in EW summarized in Table 3.1 and identified in Map 2.

Table3.1 Exposed intertidal areas within EW

AREA	OWNERSHIP/ACCESS ^a
Intertidal area along US Coast Guard Property	US Coast Guard/ restricted access
Jack Perry Memorial Park	Port of Seattle/ public access
Bridge at head of Slip 27	Port of Seattle/restricted access
Southwest bank inside Slip 27	Port of Seattle/restricted access
Mouth of Slip 27	Port of Seattle/restricted access
Bank adjacent to Spokane St bridge (east side of waterway)	Port of Seattle/restricted access
Shoreline below the West Seattle Bridge, Spokane Street Bridge, and railroad bridge (east and west sides of waterway)	City of Seattle/access not restricted
T-104	Port of Seattle/restricted access
T-102	Port of Seattle/restricted access

^a Access described for general public, the area is within tribal U&A areas so tribal members will have access to areas restricted to the general public

Beach areas are defined as sand or gravel shoreline areas that are exposed at two feet below the mean low water line (i.e. beaches exposed at a minus two foot tide.) The attached tide chart can be used to evaluate the frequency and duration of possible exposure at tidal areas in EW (Figure 1). Note that the tide chart itself does not infer frequency of site use and the resolution of the tide chart does not allow differentiation of day versus night low tides. Many beach areas of the EW are characterized by a steep rip rap slope above a bench area that has a shallower slope and sand or gravel substrate. The human access survey will verify current knowledge and perhaps identify new access locations. It will also serve to better characterize the extent of beach that may be accessed from each access point.

Human access locations for the EW can be divided into the east and west shoreline areas. The western shoreline is on Harbor Island, and is dominated by Terminal 18, which covers approximately 7,000 lineal feet of shoreline from the mouth of the waterway at the north end of Harbor Island (the entrance to Elliott Bay) south to Spokane Street South. Terminal 18 is operated by the Port of Seattle (POS), and has controlled access due to the nature of the large-scale shipping operations which are conducted there. Access to Terminal 18 and all other Port terminals is controlled by fencing (typically 12 foot high fence topped with razor wire) and a gatehouse with one or more guards. A small amount of intertidal beach on the west side of EW is present approximately 600 feet north of the Spokane Street South Bridge. The potential for access to this beach from the shoreline is unknown, but access is limited to port terminal

employees. Just south of the West Seattle Bridge is Terminal 102 and the Harbor Island Marina, which has approximately 500 lineal feet of shoreline in the EW study area. While this terminal is also controlled by POS, the public can access the shoreline via openings in the vegetative barrier near dock gangways. Map 1 outlines the location of Terminal 18 as well as the other properties bordering the EW. A small portion of the south end of Terminal 18 (less than 10% of the Terminal 18 waterfront, just north of the West Seattle Bridge) is occupied by Harley Marine Services.

POS also controls much of the shoreline along the east side of the EW. Terminal 104 is at the south end of the east side of the EW, opposite Terminal 102. An intertidal shelf was constructed at Terminal 104 to provide intertidal habitat (Map 2). Slip 27 divides Terminals 25 and 30, and has an intertidal beach area on the southern side of the slip, and in the head of the slip (Map 2). The southern bank of the slip was remediated within the past 3 years (Port of Seattle 2005), and consists of rip-rap down to the MLLW. A sandy spit is present at the southern side of the mouth of the slip, and fine-grained sediment is also present in the head of the slip (Map 2). However, because the slip lies within POS-controlled property, shoreline access is controlled by a fence and is limited to employees only. Jack Perry Park lies on the east side of EW north of Terminal 30, and offers public shoreline access (Map 2). Immediately north of the park is a facility run by the US Coast Guard. There is a small beach area (Map 2), access to which is controlled by a fence. Further, the USCG station has strict security measures in place, such that only authorized personnel could access to the beach area.

4 PROPOSED SURVEY DESIGN

This section presents the major components of the proposed human access survey design. The survey is divided into an initial information gathering task, and a site visit to verify the information collected during the initial task. The survey is intended to collect information about both authorized and unauthorized access to shoreline areas.

4.1 Task 1 – Compilation of existing information and survey of property managers

- ◆ Identify the boundaries of each property that borders the EW
- ◆ Identify site owners/managers and their contact information (telephone numbers)
- ◆ Develop a list of survey questions in collaboration with EPA and stakeholders to be used for interviews of site owners/managers. These questions should address the following information needs:
 - ◆ Location of known access points to the EW on the property (for both public and controlled access points).
 - ◆ Ascertain whether and how far property boundaries extend from the shoreline into the waterway

- ◆ Ascertain who might have contact with shoreline areas
- ◆ Identify any routine exposures that might occur (i.e. do workers inspect piers on a regular basis? Do any job-related tasks require workers to contact EW sediment? Do employees ever go to EW for recreational activity? What about fishing or crabbing? Is there unauthorized use of shoreline areas?)
- ◆ Are their expected changes in property use or operations that will affect access to beach areas or exposure?
- ◆ The observed frequency of beach use
- ◆ Discuss certain hypothetical situations (i.e. if a person were to land on the beach in a kayak, what would happen? Call POS police? Call City of Seattle police? How is trespassing controlled?)
- ◆ Ascertain the interviewee's level of familiarity with the shoreline as it pertains to their ability to describe access to the shoreline
- ◆ Contact (via telephone) property managers and ask questions from agreed upon survey through a phone interview.
- ◆ Identify locations where human access might be improved in the future following specific planned remediation activities (i.e. southern portion of Terminal 25 Bridge, or south of Jack Perry Memorial Park, where pilings are scheduled for removal)

4.2 Task 2 – Site visit and verification

- ◆ The site visit will be conducted in two parts. Human access locations themselves will be evaluated from the shoreline, while the extent of accessible beaches will be primarily investigated by boat. This approach should reduce survey time, as climbing over slippery wet rip-rap is time consuming and potentially dangerous.
- ◆ Verify descriptions of access locations, categorize as easy or difficult access. Note conditions of access location (i.e. constructed path, or need to scramble through vegetation and/or over riprap.)
- ◆ Compare access from shore vs. access from the water (are there any intertidal areas that may be accessed from the water that do not have shore access? What areas might be accessed from the water but are considered trespassing?).
- ◆ If people using the waterway are encountered during the site verification, they will be asked about their use of the waterway. Information gathered will be included in the survey memo and discussed in the human health technical memorandum if relevant for exposure scenario development.

- ◆ Characterize features that might affect use of particular locations, such as amenities that might make visitation of specific areas desirable (e.g. picnic tables, bridges or piers for fishing).

4.3 Survey outcome

The final product of the human access survey will be a memo (including one or more maps) describing the following human access characteristics:

- ◆ Each shoreline point of access, categorized by any restrictions (i.e. employee only vs. public) and the degree of difficulty associated with access
- ◆ Features or amenities that might make use of particular locations desirable
- ◆ Extent of beach accessible from each access point
- ◆ Beach areas accessible only by boat
- ◆ Parts of contiguous beach that may be accessed legally vs. parts that may require trespass (including a description of how far property boundaries extend from the shoreline into the waterway)
- ◆ Outline of each property on the EW and its associated beach area, as well as a description of the shoreline along the property (i.e. bulkhead, riprap, gravel etc.)

In addition, the memo will provide the names and titles for individuals interviewed, and a qualitative assessment of their familiarity with the shoreline. The full contact information for individuals interviewed can be provided to EPA upon request. The memo will also include photographs of various areas described in the text.

5 REFERENCES

Anchor, Windward. 2008. East Waterway Operable Unit supplemental remedial investigation/feasibility study, draft conceptual site model and data gaps analysis report. Prepared for Port of Seattle. Anchor Environmental, L.L.C., and Windward Environmental LLC, Seattle, WA.

Port of Seattle. 2005. SEPA environmental checklist, Terminal 25/Terminal 30: piling supported bridge connection and upland improvement project. POS SEPA No. 05-18. September 6, 2005. Port of Seattle, Seattle, WA.

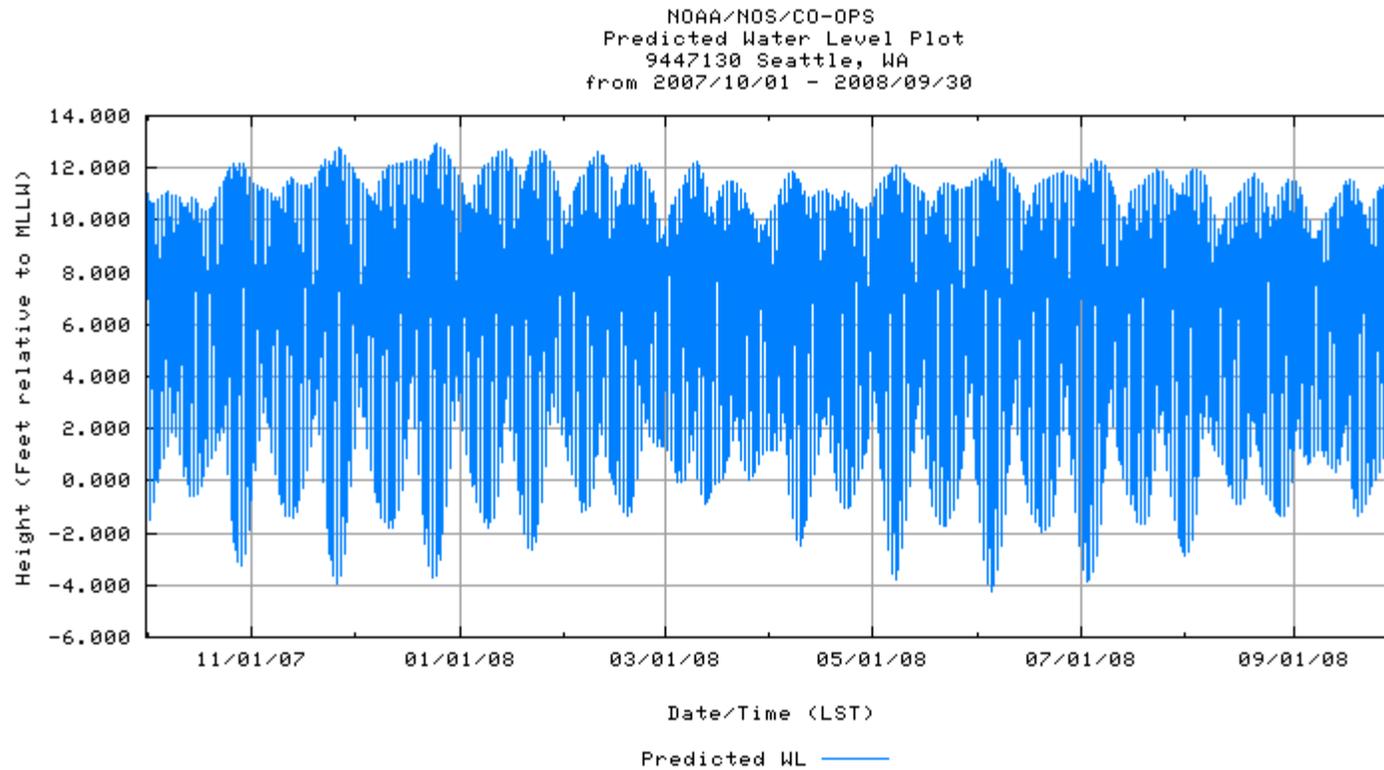
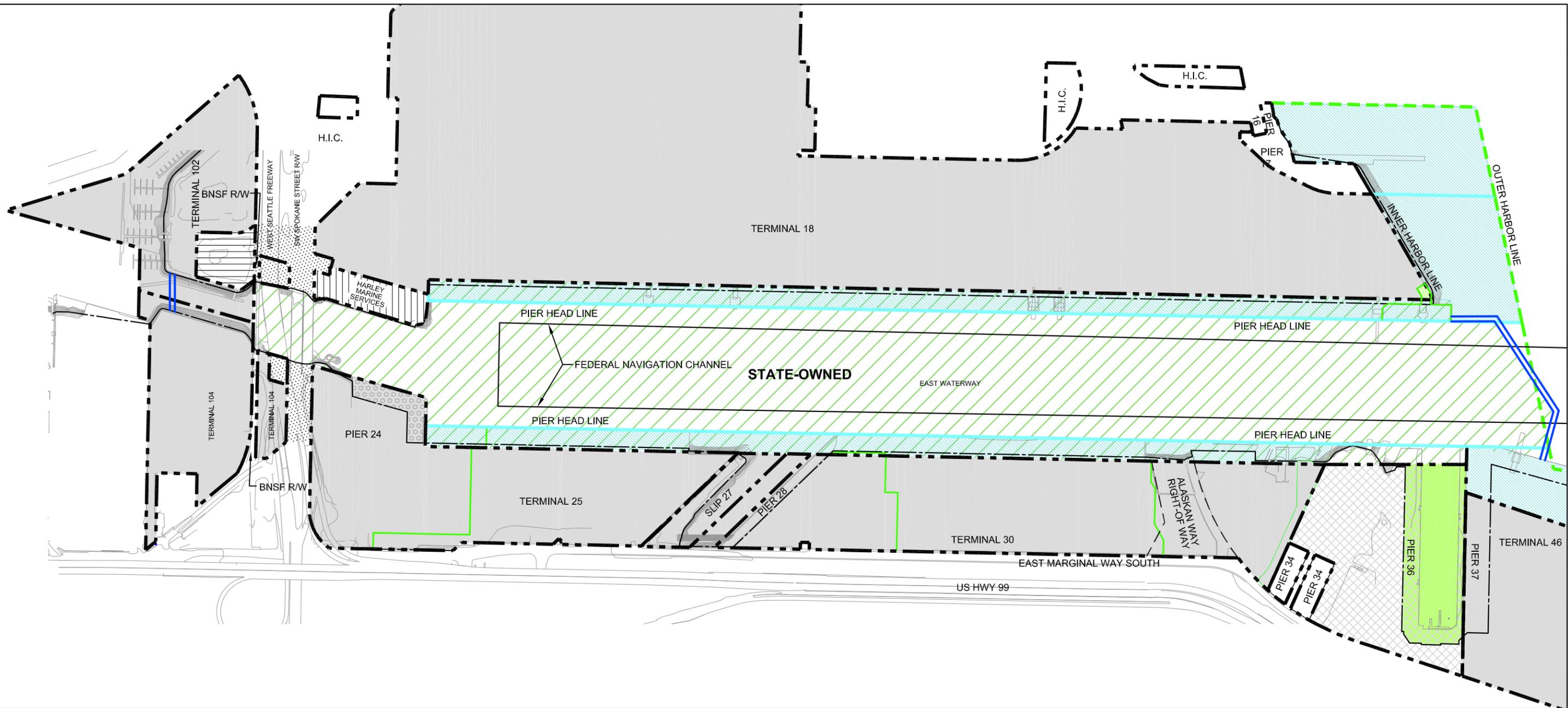


Figure 1. Tide chart for station at Seattle Ferry Terminal

(tide station closest to EW, source:

http://www.cops.nos.noaa.gov/data_menu.shtml?bdate=20071001&edate=20080930&unit=1&shift=d&mins=60&datum=6&stn=9447130+Seattle%2C+WA&type=Tide+Predictions&format=View+Plot)

K:\Jobs\060003-PORT OF SEATTLE\060003-0106000301-041.dwg MAP 1
Jul 31, 2008 12:14pm tgriga

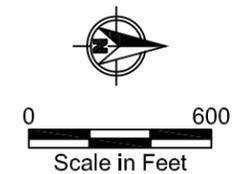


LEGEND

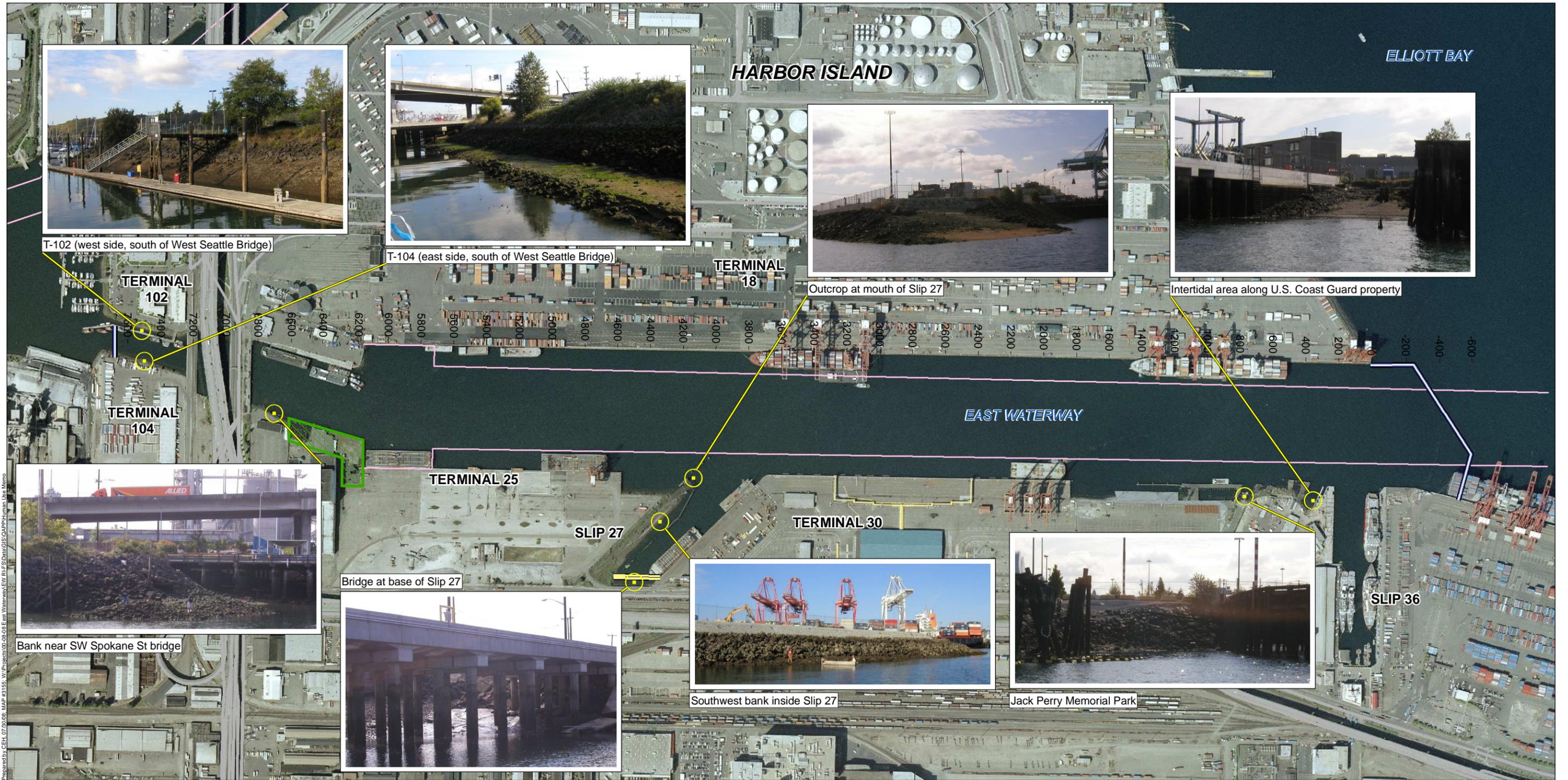
- PROPOSED EAST WATERWAY OPERABLE UNIT BOUNDARY
- MHHW LINE
- PIER HEAD LINE
- OUTER HARBOR LINE
- INNER HARBOR LINE/PROPERTY LINE
- LEASE LINE

- PORT OF SEATTLE
- HARBOR REAL ESTATE
- DUWAMISH PROPERTIES
- US COAST GUARD
- CITY OF SEATTLE

- STATE-OWNED LAND MANAGED BY THE PORT OF SEATTLE UNDER CURRENT PORT MANAGEMENT AGREEMENT (PMA) WITH DNR
- STATE-OWNED LAND WITHIN EAST WATERWAY
- US COAST GUARD-OWNED

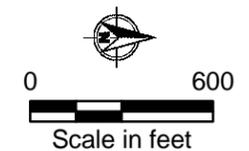


Map 1
Parcel Boundary and Owner Map
East Waterway Operable Unit



Prepared by CEH, 07/20/08, MAP #2155, W:\Projects\100_08_08_East Waterway\EW_EUE\Stand\GIS\Map\Human_Use_Memo

- Photo Locations
- Fish and Wildlife Habitat Enhancement Site
- Navigation Channel
- Slip 27 Bridge
- Proposed East Waterway Operable Unit Boundary



Map 2
Exposed Intertidal Areas Within the East Waterway
Proposed East Waterway Operable Unit