# SEPA ENVIRONMENTAL CHECKLIST

*South Riverside Drive, Shoreline Rehabilitation Project*
*West Shoreline Duwamish Waterway*

## A. BACKGROUND

**1. Name of proposed project, if applicable:**

South Riverside Drive, Shoreline Rehabilitation Project (fish and wildlife habitat restoration project)—Duwamish Waterway west shoreline, River Mile 3.2

**2. Name of applicant:** Port of Seattle

**3. Address and phone number of applicant and contact person:**

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**4. Date checklist prepared:** May 24, 2012

**5. Agency requesting checklist: Port of Seattle:** Port of Seattle (SEPA Number: 12-03)

**6. Proposed timing or schedule (including phasing, if applicable):**

The proposed project includes removal of existing inter-tidal debris and excavation of existing failing and eroding rubble-filled bank line, re-exposure of inter-tidal area, installation of low-impact shoreline stabilization, planting of native marsh and riparian vegetation, and installation of a shoreline pathway connecting South Riverside Drive and the Eighth Avenue South/South Portland Street intersection. Pending approval by participating city, state, and federal agencies, the shoreline rehabilitation project would be completed in December 2012.

**7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain**

There are no current plans for additions, expansion or further changes in shoreline area at the proposed shoreline rehabilitation site beyond the scope of the present proposal. No other construction activities or improvements are related to this proposal.

**8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

The Port is preparing an evaluation of soil conditions in upland area at the project site for the purpose of (1) determining if contaminated soils are present at the site and (2) identifying the potential for re-use of soils excavated or re-graded at the site. A copy of the soil evaluation may be obtained from

the Port for review (Contact G. Blomberg, at 206-728-3194 or by email at blomberg.g@portseattle.org).

Please note that the present proposal, excavation and grading in approximately 14,350 square feet of publicly-owned shoreline area for the purpose of rehabilitating inter-tidal and shoreline fish and wildlife habitat, is located adjacent to and north of the South Park neighborhood, Eighth Avenue South public shoreline access site constructed by the port in 2007-2008. The present proposal is intended to complement the previous public shoreline use and open space improvements. Copies of the South Park public shoreline access environmental evaluation (Port of Seattle SEPA File Number 05-18) and permit approval documents are available for review and may be obtained, contact G. Blomberg. (206-728-3194, blomberg.g@portseattle.org).

**9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

There are no other known applications pending for governmental approvals for other development actions or proposals in the immediate vicinity of the proposed shoreline restoration site.

**10. List any government approvals or permits that will be needed for your proposal, if known.**

- City of Seattle—Shoreline Substantial Development/Master Use Permit
- City of Seattle—street use authorization
- Washington Department of Fish and Wildlife – Hydraulic Project Approval
- US Army Corps of Engineers – Section 10/404 Permit
- Washington Department of Ecology – Section 401 Water Quality Certification

**11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)**

The proposed shoreline rehabilitation project includes re-grading port-owned Duwamish Waterway margin and adjacent City-owned South Riverside Drive right-of-way to provide combined inter-tidal, marsh, riparian and upland vegetation, and publicly accessible shoreline.

The proposed project includes approximately 180 linear feet of port-owned shoreline and upland on the west margin of Duwamish Waterway and the water-ward portion of South Riverside Drive, City of Seattle right-of-way, adjacent to port shoreline ownership. The existing abrupt and eroding filled shoreline area includes industrial rubble, debris, and a derelict wooden barge. Existing upland area includes unimproved port shoreline property and City right-of-way formerly used for vehicle parking and uncovered construction materials storage. The existing derelict wooden barge and inter-tidal debris field would be removed, re-exposing existing inter-tidal area. Habitat rehabilitation would also include excavating and re-grading the existing failing bank-line, relocating the top-of-bank approximately ten to 15 feet land-ward. The re-shaped bank-line would be stabilized using a combination of vegetated gabions, anchored large woody debris, and riparian vegetation. Re-graded inter-tidal and shoreline area would be planted with native marsh and riparian vegetation. Upland at the site would be re-graded to receive excavated shoreline materials and for retention of site surface water. Shoreline habitat restoration would be

complemented with a pedestrian pathway, connecting pedestrian use in South Riverside Drive with the port's existing Eighth Avenue South public shoreline access site, constructed in 2007-2008.

The proposed shoreline rehabilitation project includes two elements: (1) inter-tidal area clean-up, including removal of an existing derelict wooden barge and removal of industrial debris and rubble and (2) re-grading an existing eroding, rubble filled bank line, removing previously placed fill material to rehabilitate inter-tidal area, followed by installation of large woody debris, native marsh, riparian, and upland vegetation. The proposed shoreline rehabilitation work will be accomplished as follows:

Remove existing derelict wooden barge and inter-tidal rubble: This will require barge-mounted crane equipment or long-reach shoreline-based excavation equipment. The derelict barge will be separated into sections and all barge material and debris removed from the inter-tidal area (totaling approximately 1210 square feet). Concrete, metal, and other debris occupying adjacent inter-tidal area will be hand-loaded into equipment hoppers or buckets (totaling approximately 2865 square feet). All barge material and debris will be removed to an approved upland disposal site. The total volume of derelict barge and inter-tidal industrial debris removal is approximately 300 cubic yards, providing approximately 4075 square feet of re-exposed, rehabilitated inter-tidal area.

Shoreline re-grading and excavation: Shoreline restoration will include reducing existing shoreline and upland elevations from approximately plus 15 to 16 feet MLLW to approximately plus 11 to 13 feet MLLW. Approximately 425 cubic yards of shoreline excavation, consisting of previously placed rubble and inert fill materials, is proposed. The MHHW contour will shift up to 15 linear feet land-ward, providing approximately 1975 square feet of re-exposed, rehabilitated inter-tidal area suitable for establishing marsh vegetation. Please note that the existing bank line, approximately 180 linear feet, will be expanded due to re-grading. The re-shaped bank line will be longer, approximately 220 linear feet as a result of moving the bank line land-ward and curving the bank line west into publicly-owned shore land area.

Following excavating and re-grading of the eroding, rubble bank line, the re-shaped shoreline will be stabilized using rock-filled gabions, shaped with vegetation planting tubes and pockets, to form a terraced, vegetated bank edge. The vegetated gabions will include approximately 180 linear feet, between plus 14 and 11 feet MLLW, and require approximately 260 cubic yards fractured rock-fill. The water-ward base of the vegetated gabions will be protected with large woody debris anchored at the toe of the terraced gabion slope.

Upland excavation will include grading to create a surface water collection/retention swale. Existing grade elevations will be reduced approximately 1.5 to 2.0 feet, to 14.5 to 13 feet MLLW, including removal of approximately 50 cubic yards.

Shoreline and upland excavation materials will be stockpiled on site in the form of a landscape mound. Placement of excavation materials includes use of locking concrete barriers to form a back-wall for containing excavated materials as an elevated landscape mound. Approximately 180 linear feet of concrete barrier will be installed, allowing for a contoured mound sloping up-ward from existing grade, approximately plus 15 MLLW, to a top-of-slope elevation at

approximately plus 23 feet MLLW. The landscape mound will be placed in existing upland area and include a total of approximately 475 cubic yards of stockpiled excavated materials.

Re-exposed inter-tidal area, between approximately plus 11 feet and 13 feet MLLW will be planted with native marsh vegetation. Total area of new marsh plantings is expected to be approximately 1975 square feet.

In order to stabilize shoreline and upland slope conditions, and to improve shoreline natural resource value, native riparian vegetation will be installed at the site. Shoreline and upland vegetation will include approximately 8350 square feet riparian and upland trees, shrubs, and ground-cover.

Existing below-grade sanitary sewer and water lines will remain, unaffected by site grading activities.

**12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The proposed shoreline rehabilitation site, including combined Port of Seattle, Duwamish Waterway property and South Riverside Drive, City of Seattle, right-of-way area, has no street address. The project site is located on the west shoreline of the Duwamish Waterway, near River Mile 3.2, east of the South Riverside Drive/South Holden Street/Seventh Avenue South intersection.

South Riverside Drive project site: Latitude—47 degrees, 32 minutes, 2 seconds (North Latitude); Longitude—122 degrees, 19 minutes, 24 seconds (West Longitude)

Tax parcel number for Port of Seattle property located in shoreline areas of the Duwamish Waterway: 292404HYDR. No tax parcel number applies for City of Seattle right-of-way area in South Riverside Drive.

Note: The proposed shoreline restoration project includes removal of industrial debris and excavation and re-grading of an existing eroding bank line area located adjacent to River Mile 3.2 in the Duwamish Waterway. The bank line and debris removal area is owned by the Port of Seattle. Adjacent upland area, land-ward of the port's shoreline ownership, consisting of City of Seattle right-of-way, will also be re-graded. Inter-tidal influence will be restored, expanding inter-tidal area in public property controlled by the port and the City of Seattle. The proposed shoreline restoration project includes two property owners, each with existing upland area converted to inter-tidal aquatic area conditions.

**TO BE COMPLETED BY APPLICANT**

## B. ENVIRONMENTAL ELEMENTS

### 1. Earth

**a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, and mountainous, other _____.**

The South Riverside Drive shoreline rehabilitation site is located on the west shoreline of the Duwamish Waterway, approximately 3.2 miles south of Harbor Island. The site is approximately 0.75 miles south (upstream in the Duwamish Waterway) from the First Avenue South Bridge crossing of the Duwamish Waterway and approximately 0.5 miles north of the South Park Bridge. The site is without in-water or upland structures, excepting a METRO pump station building, approximately 12 feet high and approximately 325 square feet, located approximately 65 feet north of the east end of South Portland Street. A derelict, abandoned wooden barge, approximately 55 feet long and 22 feet wide (approximately 1210 square feet), occupies inter-tidal area at the north end of the proposed rehabilitation site.

The proposed shoreline rehabilitation site includes approximately 14,350 square feet, obliquely oriented to the existing shoreline at the water-ward (east) end of South Riverside Drive. The proposed shoreline re-grading area includes upland elevations between 14 and 15 feet above MLLW. The bank line at the site is abrupt and eroded, with concrete, metal, and inert rubble and construction debris extending from a top-of-bank elevation at approximately plus 14 feet MLLW to a toe-of-slope elevation between plus 10 and 11 feet MLLW. Water-ward of the toe-of-slope inter-tidal mud/sand substrate is present, with the MLLW contour approximately 40 to 70 feet water-ward and parallel to the toe-of-slope. Existing inter-tidal substrate surface area is covered with substantial debris, resulting from past activities in the Duwamish Waterway and derived from inert construction rubble used as past shoreline fill material eroding from the unstable bank line.

**b. What is the steepest slope on the site (approximate percent slope)?**

The steepest slopes at the proposed shoreline rehabilitation site are in the eroded bank line, between elevation plus 14 and plus 10 feet MLLW. The slope profile is nearly vertical throughout the entire project shoreline, approximately 180 linear feet.

**c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.**

All existing upland area at the proposed shoreline rehabilitation site consists of filled former tideland area of the Duwamish River estuary. Fill at the site consists of sediments dredged from the previous tideland area, excavated in the first two decades of the last century in order to create deep draft navigational access in the Duwamish Waterway, and more recently placed fill materials from adjacent upland locations. The site included in the present proposal consists entirely of filled upland and has no previous, existing, or potential agricultural use.

**d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

As a filled former aquatic area site, the proposed shoreline rehabilitation site is subject to liquefaction and is identified by City of Seattle Critical Area maps as within a liquefaction zone. Liquefaction potential zones are considered environmentally sensitive but not environmentally critical areas.

**e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

No dredging or filling of existing aquatic area is proposed. Removal of up to 300 cubic yards of existing inter-tidal debris and approximately 425 cubic yards of previously placed shoreline fill material is proposed as a remedy for the existing actively eroding bank line. Excavation would be restricted to areas landward of the existing MHHW contour and replace the existing nearly vertical bank line with a vegetated gabion slope, with native marsh vegetation and large woody debris at the new toe-of-slope and native riparian vegetation stabilizing the upper portions of the rehabilitated slope.

**f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

No erosion due to the proposed project, in existing upland area or adjacent aquatic area, is anticipated. All construction activities will take place in existing upland areas or, in the case of barge and debris removal, during periods of low water, when tide levels are below work area elevations. Debris removal will extend to approximately plus four feet MLLW, however, no inter-tidal grading will take place and debris removal will be limited to exposed low-water periods. Excavation of the failed rubble bank line will extend no lower than approximately MHHW.

**g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

The proposed shoreline rehabilitation project includes approximately 14,350 square feet. No impervious surface is within the project site at present and no new impervious surface is proposed.

**h. Proposed measures to reduce or control erosion, or other impacts to the earth if any:**

Best management practices for control of potential sources of erosion will be implemented during derelict barge and inter-tidal debris removal and during excavation for the purpose of shoreline restoration, consistent with the City of Seattle Stormwater, Grading, and Drainage Control Ordinance and Department of Planning and Development Director's Rule 6-93.

Re-shaping existing eroded shoreline areas in order to re-expose inter-tidal area and create more gradual transition slopes between MHHW and the relocated top-of-bank will entail up to 425 cubic yards of excavation of bank line and shoreline areas above approximately MHHW. A temporary erosion and sediment control plan will be prepared for managing site excavation and re-grading. During excavation the water-ward portion of the site will be isolated with a floating debris boom and upland areas will be fitted with temporary silt fences. All exposed soil surfaces will be protected from storm water-related sediment disruption through use of temporary straw bales and graded slopes will be stabilized by application of erosion control, plant-fiber mats and

formed plant material logs. Finally, all re-shaped bank line and excavated upland areas will receive native marsh plants and riparian and upland vegetation as long-term soil stabilization measures.

**2. Air**

**a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

The proposed activity is limited to the following construction activities: (1) removal of up to 300 cubic yards of existing inter-tidal debris; (2) excavation of approximately 425 cubic yards of previously placed fill material; (3) stabilizing the new shoreline slope with a sub-surface and terraced vegetated gabions, including up to 260 cubic yards of confined rock fill; (4) stockpiling excavated shoreline soils as an on-site landscaped berm; and, (5) placement of topsoil and mulch, with subsequent installation of native riparian and marsh vegetation.

Air emissions are expected from vehicles and equipment used during excavation and grading. Equipment anticipated for use at the site will include motor-powered construction machinery and heavy trucks.

Please note that air emissions anticipated from the completed rehabilitation area will be minimal and limited to maintenance vehicles and vehicles used by site visitors. Air emissions from the finished fish and wildlife habitat site are not expected to change substantially in comparison with past activities at the site.

**b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

No off-site sources of air emissions are present that have the potential to adversely affect the present proposal.

**c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

Motor-powered equipment used for the proposed construction activities and subsequent maintenance operations will be operated and maintained consistent with existing air emissions requirements.

**3. Water**

**a. Surface**

**1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

The proposed project site is located on the west margin of the Duwamish Waterway, in the area of river mile 3.2. Please note that the Duwamish Waterway is continuous with the Green/Duwamish watershed (WRIA 9).

**2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

The proposed project will take place in existing shoreline area. Shoreline excavation and upland grading will take place within 200 feet of the shoreline. Re-shaping of the existing eroded shoreline is proposed landward of the approximate MHHW, while construction activities proposed for area between MHHW and plus four feet MLLW will be limited to removal of existing rubble and derelict materials.

**3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

No dredging or fill activities are proposed.

**4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

No surface water withdrawals or diversions are proposed as part of the proposed project.

**5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

The proposed shoreline rehabilitation project will alter existing inter-tidal and adjacent shoreline and upland areas. Project activities will take place in existing aquatic area, below MHHW. Please note, however, that the shoreline restoration project is located in non-flow restricted flood plain area in the Duwamish Waterway. In addition, one of the shoreline rehabilitation objectives is to increase area subject to tidal influence. As a result the inter-tidal aquatic area prism at the project site will increase, improving the volume of tidal influence in this portion of the Duwamish Waterway.

**6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

The proposed shoreline rehabilitation project does not include discharge of waste materials to aquatic area in the adjacent Duwamish Waterway.

Two aspects of the proposed project are important to note regarding potential releases of contaminants to aquatic area in the Duwamish Waterway. First, all operating equipment at the site will be subject to best management practices (BMPs) and Spill Prevention, Containment and Countermeasures (SPCC) plans implemented to avoid and minimize potential releases of fuel and petroleum products used by construction equipment to the marine environment. Second, proposed derelict barge and inter-tidal debris removal activities will be controlled by best management practices intended to avoid and minimize potential releases of fugitive materials to the aquatic environment.

Please refer to Section B.3.d. below for additional information concerning avoiding and minimizing potential adverse effects to aquatic area in the Duwamish Waterway, aquatic area important to fish and wildlife habitat.

**b. Ground:**

**1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.**

The proposed project, including excavation of up to 425 cubic yards of existing fill material, with on-site placement of all excavated material does not include withdrawal of groundwater or discharge of materials to ground water at the project site.

**2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example, Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

The proposed project does not include any discharge of waste material to ground water at the site.

**c. Water Runoff (including storm water):**

**1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

Upland excavation will include grading to create a surface water collection/retention swale. Existing grade elevations will be reduced approximately 1.5 to 2.0 feet, to 14.5 to 13 feet MLLW, including removal of approximately 50 cubic yards. The surface water collection/retention swale is intended to receive upland storm water from public right-of-way and port shoreline property, including the proposed upland excavated material stockpile landscape berm.

Excavation and grading activities necessary to re-shape existing eroded bank line areas will be controlled using silt fences, debris booms and plant materials, including woven, plant material mats and fabric. These erosion control practices are expected to minimize and avoid potential discharges of sediment-laden storm water to the Duwamish Waterway.

The proposed shoreline rehabilitation area will be in use as a permanent fish and wildlife habitat and public use/open space area. Following construction, the re-graded area will include a combination of native shoreline and upland vegetation cover, with the only exception being a pedestrian pathway linking South Riverside Drive right-of-way with the previously constructed public shoreline access site.

Placement of native vegetation will be accompanied by use of plant material fabric and mats to prevent erosion during plant establishment. Site design will ensure that storm water will infiltrate or flow through vegetated areas to the retention swale, minimizing potential discharge to the Duwamish Waterway. No below-grade storm water conveyance system or drainage system is proposed for the site.

**2) Could waste materials enter ground or surface waters? If so, generally describe.**

Only minimal volumes of waste materials, anticipated rubble or potentially contaminated upland soils, will be generated during excavation and grading activities. These materials will be confined and collected as they are exposed and identified, with the objective of avoiding and minimizing releases of debris to surface water.

Please note that motorized equipment used for construction activities at the proposed public shoreline access site will be subject to stringent controls prohibiting discharge of deleterious materials to the aquatic environment.

**d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:**

All excavation and grading activities will be controlled to avoid and minimize potential releases of debris to the aquatic environment. Motorized equipment used to perform excavation and grading activities will be subject to prudent best management practices and stringent discharge controls.

Potential adverse effects on water quality and wildlife are expected to be limited to temporary, localized turbidity increases in the Duwamish Waterway in the vicinity of excavation at the existing filled shoreline toe-of-slope. In addition, removal of derelict barge and rubble debris may result in temporary and limited turbidity.

Potential adverse effects will be minimized during excavation and grading by the following in-water construction controls and best management practices:

- All in-water excavation and grading activities will be limited to periods determined by participating state and federal agencies to avoid potential adverse effects on migratory fish
- Barge removal, rubble removal, and excavation of the existing failed bank line will be limited to periods when work areas are exposed by low tide conditions.
- Best management practices, spill response procedures, and erosion and sediment control measures will be implemented during all phases of work in shoreline and upland locations to avoid discharges and prevent entry of debris to surface waters.

No dredging or placement of fill material is proposed.

**4. Plants**

**a. Check or circle types of vegetation found on the site:**

___ deciduous tree: alder, maple, aspen, other
___ evergreen tree: fir, cedar, pine, other
___ shrubs
___ grass
___ pasture
___ crop or grain
___ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
___ water plants: water lily, eelgrass, milfoil, other
___ other types of vegetation

**b. What kind and amount of vegetation will be removed or altered?**

Present upland and bank line conditions at the proposed shoreline restoration site include two small deciduous trees (less than 15 feet in height), blackberry vines, annual grasses, and weedy vegetation. No significant native vegetation is present in the area. Please note that the base of the eroding bank line includes several isolated emergent plants, consisting of sedge, rush, and salt-grass vegetation, with a total area of less than fifteen square feet.

The proposed shoreline rehabilitation project includes re-shaping the existing eroded bank line to create native riparian and marsh planting area throughout the entire 220 linear feet of the rehabilitated bank line.

**c. List threatened or endangered species known to be on or near the site.**

No threatened or endangered plant species are known to be in the project area.

**d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:**

The objective of the proposed shoreline project is to combine environmental restoration and the existing Eighth Avenue South—South Park public shoreline access site, adjacent and upstream (south) from the shoreline rehabilitation area. Present plans for the site include re-shaping existing eroded bank line conditions, moving the top-of-bank approximately 10 to 15 feet land-ward, to create a gradual shoreline slope in place of a nearly vertical, unstable bank line. The re-shaped slope, beginning at the MHHW contour and extending landward to approximately plus 15 feet MLLW will be stabilized with vegetated gabions, large woody debris, and native riparian and marsh vegetation. In addition, upland area, where excavation materials will be shaped as a landscaped stockpile mound, will receive native upland vegetation as habitat improvements located in the shore land district boundary. Disruption of existing emergent vegetation will be available and minimized.

**5. Animals**

**a.** Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

The proposed shoreline rehabilitation site includes approximately 14,350 square feet and approximately 180 linear feet of shoreline. The existing upland and shoreline have been significantly altered by past filling activities. Shore land and upland area at the site does not include significant upland habitat for birds or mammals. Aquatic area in the adjacent Duwamish Waterway, connecting with the East and West Waterway in south Elliott Bay, approximately 3.2 miles downstream, and upstream to the Green/Duwamish River, provides habitat important to numerous species of resident and migratory fish and wildlife.

The proposed shoreline rehabilitation project is intended to remove a modest amount of derelict materials and rubble from upper intertidal area at the project site, followed by excavation of the existing eroded bank line in order to re-establish inter-tidal conditions in filled former aquatic area. Following site grading the project area will receive dense plantings of native riparian trees and shrubs. In combination, these improvements are expected to enhance the aquatic resource value of existing adjacent intertidal and shallow sub-tidal area in the Duwamish Waterway. These actions will, therefore, provide the potential for positive aquatic area effects, offsetting any potential negative effects due to temporary in-water construction activities included in the proposed project.

The proposed bank line re-grading and re-vegetation activities represent minimal in-water construction activities. These activities will, however, require review by City of Seattle, state, and federal agencies. In recent years, development and construction activities in marine and estuarine locations in Puget Sound have been the subject of increased scrutiny as a result of Endangered Species Act listings, with particular concern for the life cycle and aquatic habitat requirements of ESA listed species. The following provides summary information concerning potential adverse

effects on fish and wildlife due to the public shoreline access improvement project, emphasizing fish and wildlife of particular concern.

Species listed under the Endangered Species Act (ESA) that may be present in the vicinity of the proposed shoreline rehabilitation project include: (1) Puget Sound Chinook salmon – threatened; (2) bull trout- threatened; (3) Stellar sea lion – threatened; (4) humpback whale – endangered; and (5) bald eagle – threatened.

South Elliott Bay, the East Waterway and West Waterway, and the Duwamish Waterway are part of a migration corridor important to anadromous salmon species, serving as a connection between Elliott Bay and the Green/Duwamish watershed. In particular, Puget Sound Chinook and bull trout are known to use the project area.

Removal of derelict barge and rubble/debris from inter-tidal area, followed by rehabilitation of the existing eroded bank line to restore area to inter-tidal influence, are not expected to result in direct effects, indirect effects, or cumulative effects on ESA-listed species of concern in the Duwamish Waterway. Construction activities necessary to accomplish shoreline restoration have the potential to temporarily increase turbidity in water column habitat that could be occupied by sub-adult or adult salmonids, but no adverse effects are expected. Because specific project timing and construction methods will be used to control potential adverse effects, turbidity is not expected to affect juvenile Chinook salmon or bull trout.

Extraction of derelict materials and rubble/debris will disturb some subtidal and intertidal benthic infauna, but effects on these populations would be temporary and are not expected to adversely affect Chinook salmon or bull trout.

Bald eagles that may be present in the project area, and their prey, could be temporarily disturbed by shoreline construction activities. However, bald eagles that have been observed near the project area appear to be habituated to a relatively high level of human activity, and rehabilitation of shoreline at this location is not expected to adversely affect eagles. Further, given the large feeding territories occupied by bald eagles, temporary disturbance of prey at the relatively compact work site, affecting approximately 0.3 acres of combined upland and aquatic area along the west bank line of the Duwamish Waterway, is not expected to impair foraging opportunities for these birds. The nearest known bald eagle nest site is approximately 5.5 miles north and west of the project site.

Steller sea lions are not common in the project area and typically would not be expected to enter the area when construction activities occur. Humpback whales are unlikely to be present in the project area at any time. There are no direct, indirect, or cumulative effects due to the proposed project that are expected to adversely affected Steller sea lions or humpback whales.

**b. List any threatened or endangered species known to be on or near the site.**

Species listed under the Endangered Species Act (ESA) that may be present in the vicinity of the proposed shoreline restoration project include: (1) Puget Sound Chinook salmon – threatened; (2) bull trout- threatened; (3) Stellar sea lion – threatened; (4) humpback whale – endangered; and (5) bald eagle – threatened.

**c. Is the site part of a migration route? If so, explain.**

South Elliott Bay, the East and West Waterways, and the Duwamish Waterway, comprise a portion of the migration corridor important to anadromous salmon species, linking Elliott Bay and the

Green/Duwamish watershed. In particular, Puget Sound Chinook and bull trout are known to use the project area.

**d. Proposed measures to preserve or enhance wildlife, if any:**

Measures to avoid and minimize potential adverse effects on ESA species of concern and, as a result, function as conservation measures, may include a combination of the following:

- Timing restrictions specifying allowable in-water work periods. Removal of derelict barge materials and rubble/debris and shoreline excavation/re-shaping activities would take place only between August 15 and February 15, or other period determined by state and federal agencies. In addition, in-water debris removal and shoreline excavation will be accomplished during low water periods, when work areas are fully exposed by low tide levels.
- Water quality standards and procedures that limit the effect of turbidity to a defined mixing zone, stipulate limits for chemical constituents, dissolved oxygen, and other parameters, implemented by the Washington Department of Ecology.
- Best management practices (BMPs ) required to reduce the potential for construction-related potential affects on aquatic species and their habitats, including: (1) prevention of releases of petroleum products, chemical, or other toxic or deleterious materials to the water; (2) immediate stop of work to report and contain any spills or releases, and, (3) preparation and application of a Spill Prevention, Control, and Countermeasure (SPCC) plan for use through the piling removal and installation activities.

Upland area at the proposed shoreline rehabilitation site is the result of more than 80 years of past development and fill activities. Existing intertidal mud/sand substrate (extending water ward from approximately plus 11 feet MLLW to minus four feet MLLW) consists of a relic band of native sediment exposed during construction of the Duwamish Waterway. Sub-tidal aquatic area (water depths greater than minus four feet MLLW) water-ward of the project site is the result of past waterway dredging actions.

Two proposed development actions have the potential to alter existing intertidal and sub-tidal aquatic area at the project site. First, removal of up to approximately 300 cubic yards of combined derelict barge and rubble/debris from existing intertidal area will improve intertidal habitat conditions between plus 11 feet and plus four feet MLLW. Second, re-habilitation of up to 180 linear feet of bank line by eliminating erosion and replacing an abrupt bank profile with a terraced, vegetated gabion bank line up to 15 feet land-ward of the existing bank line, accompanied by densely planted native marsh and riparian vegetation, will enhance the biological resource value of adjacent intertidal and shallow sub-tidal aquatic areas.

Please also see Section B.3.d. (Water) above for measures to avoid and minimize potential adverse effects on water resources important to the life forms noted above.

**6. Energy and Natural Resources**

**a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

No significant change in use of energy is anticipated to result from the proposed shoreline rehabilitation project. No structures or other energy-requiring facilities are included in the proposed project.

**b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

The proposed project will have no adverse effect on potential use of solar energy at adjacent sites.

**c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

Fuel-efficient electrical and motorized equipment will be used to the extent possible during construction of the proposed project. Please note that the proposed project includes restoration of fish and wildlife habitat and passive public use/open space and does not include operations at the site with requirements for energy use.

**7. Environmental Health**

**a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.**

The proposed project does not include operations or activities with the potential to produce hazardous materials or waste products at the site. Please note that the proposed shoreline rehabilitation site has no history of past industrial use and the potential for hazardous materials due to past industrial practices at the site is minimal. However, the location has been altered in the past 80 years through placement of fill material, elevating the site from upper intertidal elevation, approximately plus ten to 11 feet MLLW to approximately 14 to 15 feet above MLLW. In addition, the adjacent Duwamish Waterway is identified as a Federal Superfund site. The present proposal will be reviewed with the Environmental Protection Agency and participating natural resource trustees to ensure that debris removal from existing aquatic area is consistent with emerging Duwamish Waterway Superfund requirements, aiding in correction of waterway conditions, without impeding future cleanup actions in the waterway.

Item A.8 above, indicates that previously placed upland fill material at the site will be evaluated for potential presence of contamination. Excavated soil monitoring will determine the necessity for placement of excavation materials at an off-site controlled landfill or if excavation materials may be safely re-used at the site in preparation of landscape berms.

Please note that motorized equipment used for construction activities may include potentially hazardous materials in the form of fuel, lubricants, and associated materials. These materials will be subject to local, state, and federal controls and regulations pertaining to use, handling, and storage. No increase in exposure is anticipated.

**1) Describe special emergency services that might be required.**

No special emergency services are anticipated or necessary due to the proposed project.

**2) Proposed measures to reduce or control environmental health hazards, if any:**

Potentially hazardous fuels, lubricants, and associated materials used for operation of motorized equipment as part of the proposed excavation and re-grading activities will be subject to existing

local, state, and federal controls for use, handling, and storage, with the objective of avoiding potential environmental health exposure and hazards.

**b. Noise**

**1) What types of noise exist in the area which may affect your project (for example: traffic equipment, operation, other)?**

The proposed shoreline rehabilitation project site is located on the west shoreline of the Duwamish Waterway, near river mile 3.2, between the First Avenue South and South Park bridge crossings of the Duwamish Waterway. The site is in the Duwamish industrial area and existing sources of noise at the site include motor-driven vehicles, particularly heavy trucks and industrial equipment.

**2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.**

Short-term noise levels will be affected at the site during construction. Noise-generating construction equipment will include derelict barge and debris removal activities, excavation and grading, hauling of project materials to and from the site, and installation alternative shoreline stabilization features.

Construction activities are expected to take place during normal working hours. It is expected that noise generated from construction equipment will be within existing industrial area day time baseline levels and noise levels are not expected to exceed industrial noise code standards implemented by City of Seattle.

No significant increase in noise resulting from public use of the site is expected to result from the proposed project.

**3) Proposed measures to reduce or control noise impacts, if any:**

All motorized construction equipment will be maintained and operated consistent with prudent measures to control potential noise emissions.

**8. Land and Shoreline Use**

**a. What is the current use of the site and adjacent properties?**

The proposed shoreline rehabilitation site is located in the Duwamish industrial area, surrounded by sites and businesses built and committed to general industrial uses and activities.

**b. Has the site been used for agriculture? If so, describe.**

The project site, as filled, former estuarine aquatic area, has no historic agricultural use.

**c. Describe any structures on the site.**

The site proposed for rehabilitation of shoreline features benefiting estuarine and shoreline fish and wildlife resources does not include above grade structures, in upland or aquatic area.

Upland area at the site, west of the shoreline proposed for excavation and re-grading, consists of un-improved street right-of-way and vacant shoreline property separating street right-of-way and the Duwamish Waterway. Upland area has been used in past years for vehicle parking and outdoor storage. As public right-of-way, no structures or exclusive, permanent uses of the area have been permitted. Similarly, the narrow upland strip located between the east end of the street right-of-way and the Duwamish Waterway has no above-grade structures and past use has been limited to vehicle parking and un-improved, outdoor storage. No above-grade structures are

present in the area of the proposed project, water-ward of MHHW. The site has not been subject to industrial uses or moorage. Please note, however, that an above grade vessel/structure is present at the north margin of the site, consisting of a derelict wooden barge, approximately 1210 square feet in area.

Below-grade structures at the site include two utility lines, passing through street right-of-way, through the shoreline property between the right-of-way and the Duwamish Waterway, and connecting to public right-of-way at the South Portland Street/Eighth Avenue South intersection. The below-grade utilities consist of: (1) a single 36 inch diameter sanitary sewer line, approximately eight feet below-grade and (2) a single 12 inch diameter water line, approximately three feet beneath existing ground level.

The proposed project area is un-improved. No storm water pipe collection system, catch basins, or storm water outfall is present. The site is un-paved.

**d. Will any structures be demolished? If so, what?**

The proposed project includes only limited demolition, including removal of a derelict abandoned wooden barge and rubble/debris from existing intertidal area.

**e. What is the current zoning classification of the site?**

The existing zoning classification is Heavy Industrial (IG1/U 65)

**f. What is the current comprehensive plan designation of the site?**

Existing comprehensive land use designations for the site include Heavy Industrial, General Industrial, and Manufacturing.

**g. If applicable, what is the current shoreline master program designation of the site?**

The present City of Seattle Shoreline Master Program designation for the site is Urban Industrial (UI).

**h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.**

City of Seattle Critical Area Maps indicate that the project site is within a liquefaction zone, since the upland and shoreline area proposed for excavation and re-grading was created by means of fill placed in a portion of former Duwamish estuary tidelands. Liquefaction zones are considered environmentally sensitive but not environmentally critical areas.

**i. Approximately how many people would reside or work in the completed project?**

No residential uses are present at the project site and no residential occupancy is proposed. No workers would be employed at the finished shoreline restoration site.

**j. Approximately how many people would the completed project displace?**

The completed project will not result in displacement of workers.

**k. Proposed measures to avoid or reduce displacement impacts, if any:**

No displacement of residents will result from the proposed project; therefore, no measures for avoiding or reducing displacement impacts are included in the present proposal.

**l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

The proposed shoreline rehabilitation project is consistent with existing plans approved by the City of Seattle and the port, relating to fish and wildlife habitat restoration, shoreline stabilization, and improved public shoreline use and open space. Estuarine habitat restoration and public shoreline use at the proposed location are intended to be compatible with adjacent industrial uses and activities, while serving as an area-wide and community asset for the nearby South Park neighborhood. The project is consistent with the port's long-range Seaport facility objectives and consistent with the permitted uses and activities identified in the Seattle Shoreline Master Program.

**9. Housing**

**a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

No housing units are included in the proposed project.

**b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.**

No housing units would be eliminated due to the proposed project.

**c. Proposed measures to reduce or control housing impacts, if any:**

Since no housing resources will be affected, no measures to reduce or control adverse effects on housing are included in the present proposal.

**10. Aesthetics**

**a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

Proposed site changes include grade-level construction throughout, with the exception of creating an upland landscape berm to receive excavated shoreline materials. The landscape berm would for a mound up to eight feet above existing grade level (top of berm elevation approximately 23 feet above MLLW and existing street right-of-way grade elevations of approximately plus 15 feet MLLW).

**b. What views in the immediate vicinity would be altered or obstructed?**

No adverse effects on views of adjacent water and shoreline areas are expected to result from the proposed fish and wildlife habitat restoration activities. Public use or the area will include improved shoreline views/perspectives.

**c. Proposed measures to reduce or control aesthetic impacts, if any:**

No significant changes in view conditions at the site are anticipated and no offsetting aesthetic measures are included in the present proposal.

**11. Light and Glare**

**a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

The proposed shoreline rehabilitation project does not include any new lighting or changes in existing lighting.

**b. Could light or glare from the finished project be a safety hazard or interfere with views?**

No lighting is proposed and existing conditions will not be altered.

**c. What existing off-site sources of light or glare may affect your proposal?**

No off-site sources of light and glare in the area of the project site are expected to adversely affect the present proposal.

**d. Proposed measures to reduce or control light and glare impacts, if any:**

No glare reduction or control measures are necessary.

**12. Recreation**

**a. What designated and informal recreational opportunities are in the immediate vicinity?**

The Port of Seattle has constructed and maintains four public shoreline access sites in the Duwamish Waterway in the area of the proposed shoreline rehabilitation project: (1) Duwamish Public Access at Terminal 105, 4030 West Marginal Way Southwest—including 210 feet of shoreline, 1.3 acres, fishing pier, covered tables, hand-carried boat launch, and fish and wildlife habitat; (2) Diagonal Avenue South Public Access, at Terminal 108, west of East Marginal Way South, on Diagonal Avenue—including 1.2 acres with 700 feet of shoreline, interpretive signs, hand-carried boat launch, and fish and wildlife habitat restoration area; (3) Duwamish Public Access at Terminal 107, 4700 West Marginal Way Southwest—including 7.2 acres, wildlife observation, shoreline pathway, tables and benches, interpretive information, and fish and wildlife habitat restoration areas; and, (4) Eighth Avenue South—South Park Public Shoreline Access Site—including approximately 17,000 square feet and 200 linear feet of shoreline, with seating, tables, concrete walkways, steps to MHHW access, native marsh/riparian vegetation, and passive shoreline stabilization. Additional public use areas near the project site include public right-of-way at the east shoreline of the Duwamish Waterway, Eighth Avenue South street-end, Georgetown, and public access and fish and wildlife habitat areas in the area of Turning Basin Number Three, upstream of the project site.

**b. Would the proposed project displace any existing recreational uses? If so, describe.**

The proposed project will not alter or disrupt existing public shoreline or recreational uses in the project area.

**c. Proposed measures to reduce or control impacts, if any:**

As described above, the objective of the proposed shoreline rehabilitation project is to complement the existing Eighth Avenue South—South Park public shoreline access site, adding approximately 0.3 acres of restored fish and wildlife habitat, native vegetation, upland native vegetation, and a connecting pathway to South Riverside Drive public right-of-way.

**13. Historic and Cultural Preservation**

**a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.**

No listed historic or cultural resource sites are known to be present at or adjacent to the project site. The possibility that historic or cultural resources are present at the site is low since the present shoreline site consists of fill placed in former aquatic area of the Duwamish estuary.

Please note that aquatic area in the vicinity of the project site consists of Treaty-reserved “usual and accustomed” fishing area. The Muckleshoot Indian Tribe, together with the Washington Department of Fish and Wildlife, manages fishing activity in this area. Fishing by Tribal members in this area is consistent with past federal government treaties and subsequent court decisions. Treaty fishing is an ongoing activity, and thus, a baseline condition within this area.

Members of the Muckleshoot Indian Tribe harvest chinook, coho, chum, pink and steelhead salmon in the Elliott Bay/Duwamish traditional fishing areas during summer, fall, and winter of each year, generally from August through February. The shoreline restoration site is an active set net fishing area. Removal of the derelict barge and inter-tidal debris field will improve the area for net fishing, eliminating obstacles to placement of nets. No loss of fishing access will result from the proposed shoreline rehabilitation project.

**b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.**

No landmarks or evidence of historic, archaeological, scientific, or cultural features of importance are known to be at the project site or potentially affected by project actions.

**c. Proposed measures to reduce or control impacts, if any:**

No potential adverse effects on historic resources are anticipated and no measures are proposed to reduce or control such effects.

The port acknowledges the need to evaluate the present proposal in detail with the Muckleshoot Indian Tribe to determine actions necessary to avoid and minimize potential negative effects on Treaty fishing access. It is important that construction activities necessary for the proposed project avoid and minimize potential disruption of Treaty fishing activities.

**14. Transportation**

**a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.**

The proposed shoreline rehabilitation site is located on the west margin of the Duwamish Waterway, in the South Park neighborhood. The site is east of Highway 99 and Highway 509, south of the First Avenue South Bridge, and north of the South Park. The street grid in South Park provides connections to Highway 99 and 509, West Marginal Way Southwest, the Southwest Spokane Street corridor and East Marginal Way South via existing direct links and arterial traffic routes.

**b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?**

Public transit routes are present south and west of the project site, using Eighth Avenue South, South Kenyon Street, Fifth Avenue South, and South Holden Street. The nearest King County-Metro service is present at the intersection of Eighth Avenue South and South Kenyon Street, Metro Route 132.

**c. How many parking spaces would the completed project have? How many would the project eliminate?**

The proposed project does not include on-site parking. Approximately 7450 square feet of existing public right-of-way will be altered, removing a modest area of potential vehicle and material storage potential in the water-abutting portion of the South Riverside Drive street end. Off-site employee parking areas used by businesses located in adjacent areas of South Riverside Drive will not be affected. Please note that South Riverside Drive is not a “through street”, ending at the west shoreline of the Duwamish Waterway. The proposed rehabilitation project will not eliminate a

transportation route. Nor will be project remove existing, approved uses of public right-of-way for vehicle parking or material/equipment storage.

**d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

The proposed does not include new street improvements. However, existing street use area will be diminished for the purpose of fish and wildlife habitat restoration.

**e. Will the project use (or occur in immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

No changes in adjacent rail or air transportation will result from the proposed project. It is important to note that the proposed project is not expected to result in significant changes in vehicle use patterns or the number of vehicles in the area.

**f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

No significant change in the volume vehicles in the area is expected.

During construction, it is expected that vehicle use will include truck trips necessary for material hauling (including removal of demolition materials and delivery of construction materials) and construction employee trips. The total number of construction vehicle trips is not expected to exceed 25 trips per day, during a potential 12 week construction period.

**g. Proposed measures to reduce or control transportation impacts, if any:**

No negative effects on transportation in the area of the project site are anticipated. Vehicle parking and storage of materials in the water-ward portion of South Riverside Drive will be eliminated. However, sufficient remaining street right-of-way is present in the area to accommodate worker vehicle and heavy vehicle parking, as well as potential material storage uses, in support of adjacent commercial and industrial activities, subject to street use approval from the City of Seattle.

**15. Public Services**

**a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

No increase in public services is anticipated as a result of the proposed project.

**b. Proposed measures to reduce or control direct impacts on public services, if any**.

No measures for offsetting, reducing or controlling negative effects on public services are required.

**16. Utilities**

**a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.**

The project site does not require utility service of any kind.

**b. Describe the utilities that are proposed for the project, the utility providing the service and the general construction activities on the site or in the immediate vicinity that might be needed.**

No utilities are included in the proposed project and none will be required.

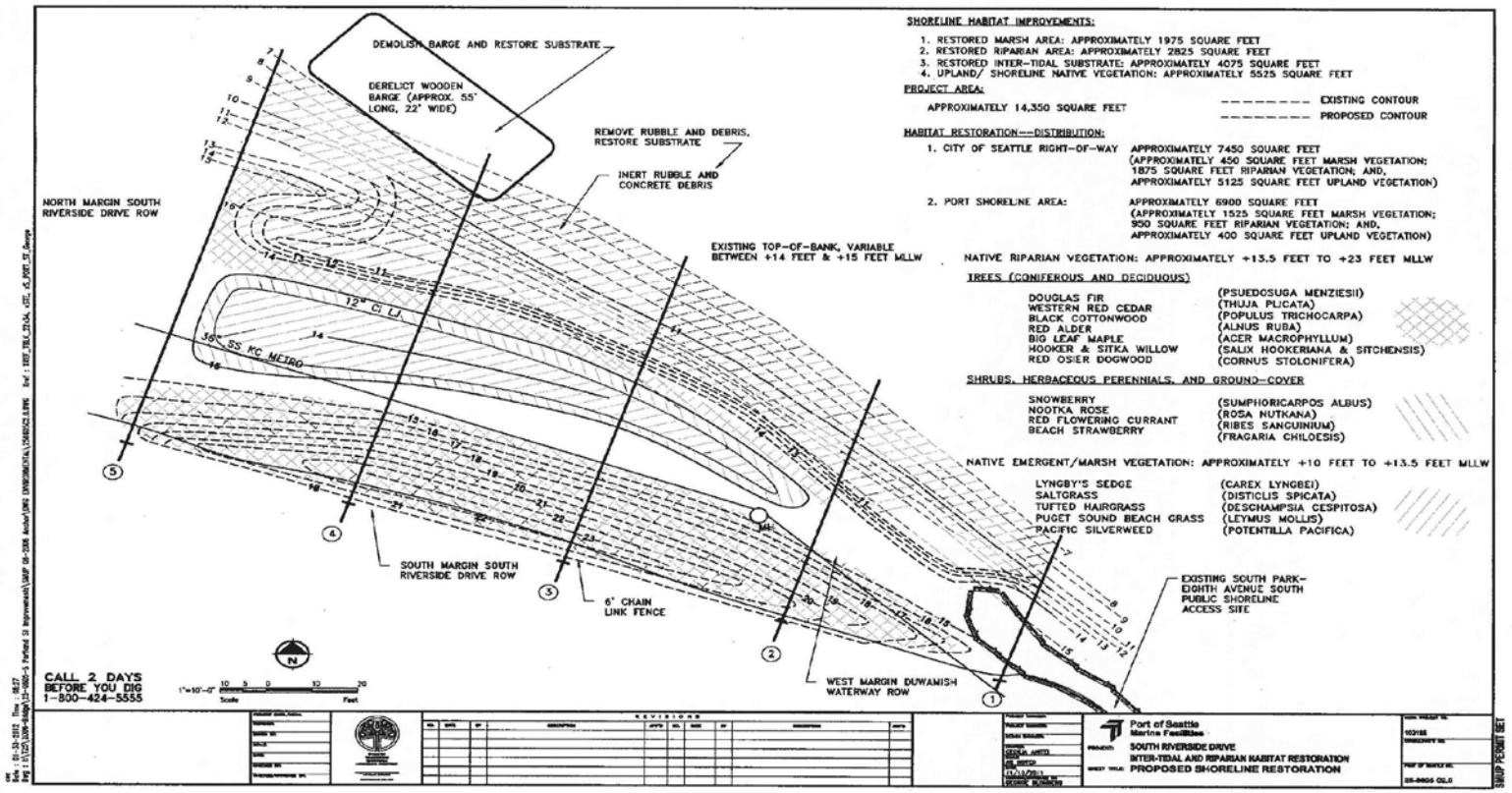
## C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

**Signature**: Signature on File

Geo. Blomberg
Seaport Environmental and Planning
Port of Seattle

**Date Submitted**: June 28, 2012


SHORELINE HABITAT IMPROVEMENTS:
1. RESTORED MARSH AREA: APPROXIMATELY 1975 SQUARE FEET
2. RESTORED RIPARIAN AREA: APPROXIMATELY 2825 SQUARE FEET
3. RESTORED INTER-TIDAL SUBSTRATE: APPROXIMATELY 4075 SQUARE FEET
4. UPLAND/ SHORELINE NATIVE VEGETATION: APPROXIMATELY 5525 SQUARE FEET
PROJECT AREA:
APPROXIMATELY 14,350 SQUARE FEET
EXISTING CONTOUR
PROPOSED CONTOUR
HABITAT RESTORATION--DISTRIBUTION:
1. CITY OF SEATTLE RIGHT-OF-WAY APPROXIMATELY 7450 SQUARE FEET (APPROXIMATELY 450 SQUARE FEET MARSH VEGETATION; 1875 SQUARE FEET RIPARIAN VEGETATION; AND, APPROXIMATELY 5125 SQUARE FEET UPLAND VEGETATION)
2. PORT SHORELINE AREA: APPROXIMATELY 6900 SQUARE FEET (APPROXIMATELY 1525 SQUARE FEET MARSH VEGETATION; 950 SQUARE FEET RIPARIAN VEGETATION; AND, APPROXIMATELY 400 SQUARE FEET UPLAND VEGETATION)
NATIVE RIPARIAN VEGETATION: APPROXIMATELY +13.5 FEET TO +23 FEET MLLW
TREES (CONIFEROUS AND DECIDUOUS)
DOUGLAS FIR (PSUEDOSUGA MENZIESII)
WESTERN RED CEDAR (THUJA PLICATA)
BLACK COTTONWOOD (POPULUS TRICHOCARPA)
RED ALDER (ALNUS RUBA)
BIG LEAF MAPLE (ACER MACROPHYLLUM)
HOOKER & SITKA WILLOW (SALIX HOOKERIANA & SITCHENSIS)
RED OSIER DOGWOOD (CORNUS STOLONIFERA)
SHRUBS, HERBACEOUS PERENNIALS, AND GROUND-COVER
SNOWBERRY (SUMPHORICARPOS ALBUS)
NOOTKA ROSE (ROSA NUTKANA)
RED FLOWERING CURRANT (RIBES SANGUINIUM)
BEACH STRAWBERRY (FRAGARIA CHILOENSIS)
NATIVE EMERGENT/MARSH VEGETATION: APPROXIMATELY +10 FEET TO +13.5 FEET MLLW
LYNGBY'S SEDGE (CAREX LYNGBEI)
SALTGRASS (DISTICLIS SPICATA)
TUFTED HAIRGRASS (DESCHAMPSIA CESPITOSA)
PUGET SOUND BEACH GRASS (LEYMUS MOLLIS)
PACIFIC SILVERWEED (POTENTILLA PACIFICA)
DEMOLISH BARGE AND RESTORE SUBSTRATE
DERELICT WOODEN BARGE (APPROX. 55' LONG, 22' WIDE)
REMOVE RUBBLE AND DEBRIS, RESTORE SUBSTRATE
INERT RUBBLE AND CONCRETE DEBRIS
NORTH MARGIN SOUTH RIVERSIDE DRIVE ROW
EXISTING TOP-OF-BANK, VARIABLE BETWEEN +14 FEET & +15 FEET MLLW
12" CI U.
36" SS KC METRO
SOUTH MARGIN SOUTH RIVERSIDE DRIVE ROW
6' CHAIN LINK FENCE
EXISTING SOUTH PARK-EIGHTH AVENUE SOUTH PUBLIC SHORELINE ACCESS SITE
WEST MARGIN DUWAMISH WATERWAY ROW
CALL 2 DAYS BEFORE YOU DIG 1-800-424-5555
Port of Seattle
Marine Facilities
SOUTH RIVERSIDE DRIVE
INTER-TIDAL AND RIPARIAN HABITAT RESTORATION
PROPOSED SHORELINE RESTORATION
SHOP PERMIT SET

**Site Map**

## ATTACHMENT 1 – GREENHOUSE GAS (GHG) EMMISSIONS WORKSHEET

Supplemental Information for SEPA Environmental Checklist

| **GHG Emission Sources** (CO2, CH4, N2O, HFCs, PFCs, SF6)[i] | **What sources are likely from the proposal?** ***List specific type of activities, and duration of emissions*** | **What is the quantitative or qualitative assessment of those emissions?** | **What available mitigation will avoid or reduce those emissions?** |
|---|---|---|---|
| On-Road Mobile Sources | Heavy trucks used for transport of construction equipment, removal of demolition and debris materials from site, and delivery of construction materials to site. | Gasoline and diesel fuel consumed in transport of materials to and from site. Combined CO2 emissions (including number of trips, distance, and fuel use), approximately 3.3 metric tons. | Use of efficient, well maintained transport equipment. Consolidation of activities to minimize number of trips. Elimination of idle operation, engine shut-down when not in use. Use of bio-diesel as appropriate. |
| Non-Road Mobile Sources | Large tracked, hydraulic excavator and medium rubber-tired, rough terrain fork-lift. | Diesel fuel consumed during construction, including demolition, excavation, site grading, placement of shoreline stabilization, soil, and native vegetation. Combined CO2 emissions, approximately 19.3 metric tons. | Use of efficient, well maintained construction equipment. Elimination of idle operation, engine shut-down when not in use. Use of bio-diesel as appropriate. |
| Stationary Combustion | No structures or buildings with mechanical equipment included in proposed project. Does not apply. | | |
| Industrial Processes | No structures or buildings with associated manufacturing or industrial processes are included in proposed project. Does not apply. | | |
| Fugitive Emissions | Fugitive air emissions limited to potential methane and anaerobic decomposition gases released during excavation of organic materials associated with previously placed fill material at the shoreline rehabilitation site. | Minimal emissions are expected due to limited volume of excavation and shallow depth of grading. | Reduce pace of excavation and grading or shift site work as temporary measure. |
| Agricultural Emissions | Does not apply. | | |

| **GHG Emission Sources** (CO2, CH4, N2O, HFCs, PFCs, SF6)[i] | **What sources are likely from the proposal?** ***List specific type of activities, and duration of emissions*** | **What is the quantitative or qualitative assessment of those emissions?** | **What available mitigation will avoid or reduce those emissions?** |
|---|---|---|---|
| Land Disturbance | Proposed project includes removal of small amount of existing invasive vegetation (approximately 0.02 acres) and installation of approximately 0.23 acres native riparian and marsh vegetation. | Increased area of vegetation at completed site provides net increase in carbon sequestration in vegetation and soils, approximate benefit of 75-80 metric tons total carbon sequestered. | Net benefit carbon sequestration, compared with total project CO2 construction emissions, approximately 49-53 metric tons. |
| Purchased Electricity and Steam | No structures or occupied buildings are included in the proposed project. No power requirements are included. | | |
| Construction | Construction emissions evaluated in On-Road Mobile Sources and Non-Road Mobile Sources, above. | Total estimated construction emissions, approximately 26-27 metric tons CO2, including employee commute transportation and product use, below. | Use of efficient, well maintained transport equipment. Consolidation of activities to minimize number of construction vehicle trips. Elimination of idle operation, engine shut-down when not in use. Use of bio-diesel as appropriate. |
| Extraction of Purchased Materials | Does not apply. | | |
| Processing of Purchased Materials | Does not apply. | | |
| Transportation of Purchased Materials | Refer to On-Road Mobile Sources above. | | |
| Employee Commute | Proposed project includes employee transportation to site, with use of personal and fleet vehicles. | Estimated emissions expected from employee gasoline vehicle transportation, approximately 0.9 metric tons CO2. | Employee commute trips will be avoided and minimized through shared vehicle trips. |
| Other Mobile Emissions | Does not apply. | | |
| Water Use and Wastewater Disposal | Proposed project includes minimal irrigation during three year period for establishment of native vegetation cover. | Minimal emissions expected associated with use of municipal water system. | Temporary irrigation will be managed to conserve water. |
| Waste Management | Proposed project includes off-site disposal of demolition materials. | Emissions associated with transport of demolition materials included in construction evaluation, above. | Practices to avoid or reduce emissions noted in construction and associated vehicle use, above. |

| **GHG Emission Sources** (CO2, CH4, N2O, HFCs, PFCs, SF6)[i] | **What sources are likely from the proposal?** ***List specific type of activities, and duration of emissions*** | **What is the quantitative or qualitative assessment of those emissions?** | **What available mitigation will avoid or reduce those emissions?** |
|---|---|---|---|
| Product Use | Proposed project includes use and installation of metal gabions, crushed rock, irrigation piping, and vegetative erosion control fabric. | Embodied emissions resulting from use of manufactured materials as project elements, approximately 2.9 metric tons CO2. | Use of manufactured materials will be minimized. Alternative construction techniques will be used for slope stabilization purposes. |

| | | |
|---|---|---|
| **$CH_4$** | Methane | Landfills, production and distribution of natural gas & petroleum, fermentation from the digestive system of livestock, rice cultivation, fossil fuel combustion, etc. |
| **$N_2O$** | Nitrous Oxide | Fossil fuel combustion, fertilizers, nylon production, manure, etc. |
| **HFC's** | Hydrofluorocarbons | Refrigeration gases, aluminum smelting, semiconductor manufacturing, etc. |
| **PFC's** | Perfluorocarbons | Aluminum production, semiconductor industry, etc. |
| **$SF_6$** | Sulfur Hexafluoride | Electrical transmissions and distribution systems, circuit breakers, magnesium production, etc. |