BIOLOGICAL EVALUATION

WEST BAY PARK PROJECT

Submitted to

National Marine Fisheries Service

U.S. Fish and Wildlife Service

Prepared By

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1 SUMMARY

The City of Olympia Parks, Arts and Recreation Department (OPARD) proposes to implement the first phase of a new waterfront park, which will integrate public access and recreation opportunities with shoreline and habitat restoration and upland clean up on the site of a former lumber mill on Budd Inlet (Figures 1 and 2).

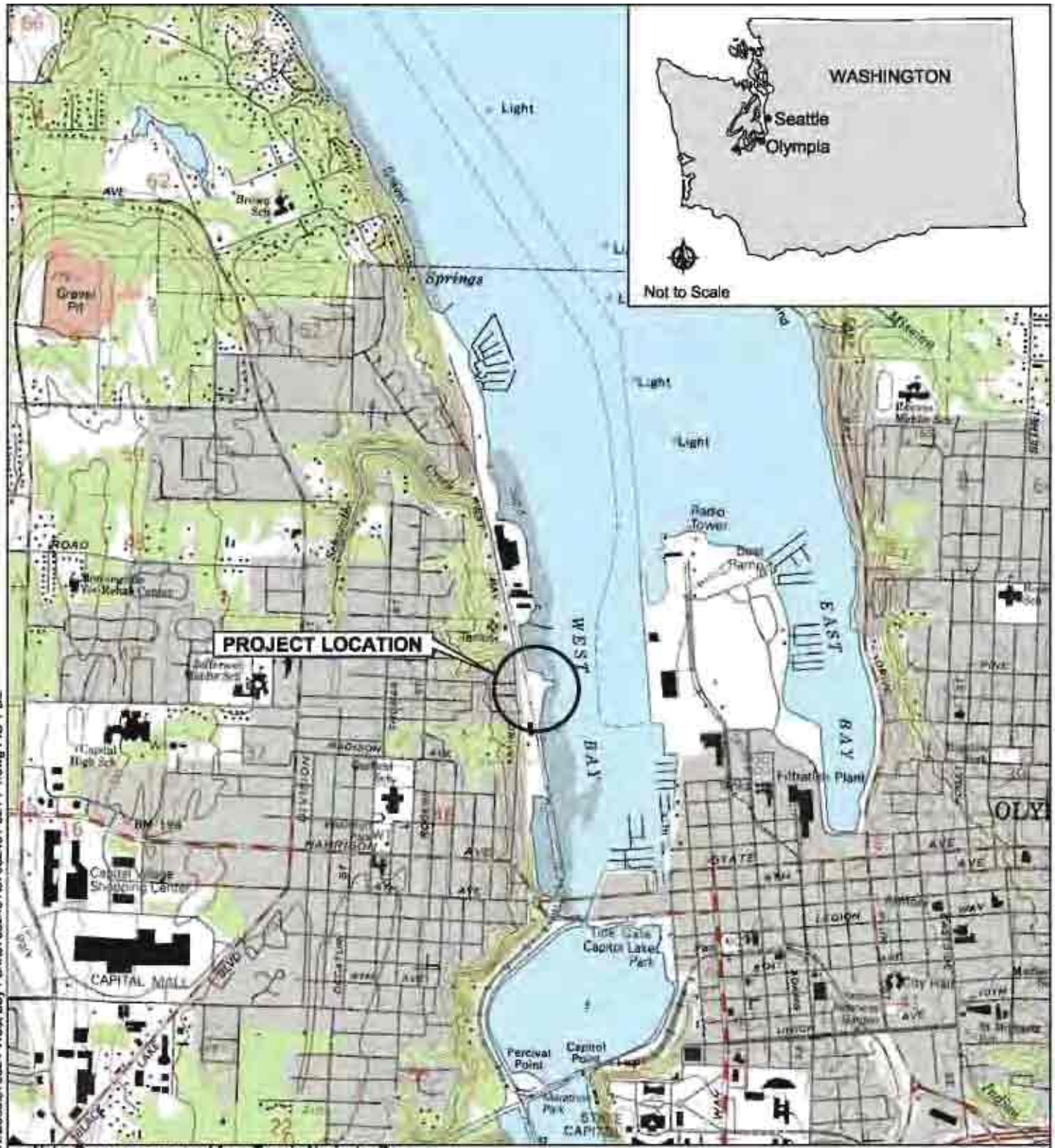
The Phase I park improvements will encompass 3.97 acres of the overall 11.7-acre property that was purchased by the City. OPARD proposes to build a two-lane access driveway, parking, and turnaround with a drop-off area adjacent to a central entry plaza to accommodate public access. A first segment of the new West Bay Trail, a multi-use bike and pedestrian trail, which will eventually connect downtown to the west side of Budd Inlet, will be constructed paralleling the shoreline. Other project elements include open meadows, trails, viewing and seating areas, and shoreline restoration and access. Shoreline restoration activities will include restoration of salt marsh and riparian vegetation, removal of creosote pilings and debris, and restoration of natural cobble beach materials. Olympia's Rotary Club is sponsoring a portion of this project, which will include a viewing area at Rotary Point, a hand-held boat launch, trails, lawn, and landscaped areas (Figure 3).

1.1. Project Overview

The purpose of the project is to implement the first phase of West Bay Park and to restore degraded marine shoreline in the project area, including preserving and enhancing existing saltwater marshlands and enhancing shoreline vegetation with riparian plantings. The first phase of the project includes activities such as shoreline and upland clean up and habitat restoration, creation of a hand-held boat launch, strolling paths, development of a segment of the West Bay Trail, and construction of a vehicle access drive including a turnaround and parking area.

The first project phase will occur in the central portion of the site as shown on Figure 4. A portion of the project will be funded by the City of Olympia Rotary Club, which includes the development of a panoramic viewpoint.

To assess the effects of the proposed project on listed species, impacts to physical, chemical, and biological indicators have been evaluated in this BE and are addressed in Section 4.



Dec 06, 2007 8:03am cdavidson K:\Jobs\070324-West Bay Park\070324010703240 1-021-P1.dwg FIG 1 BE

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 1
Vicinity Map
West Bay Park Biological Evaluation
Olympia, Washington

Photo Source: Google Earth 2007.

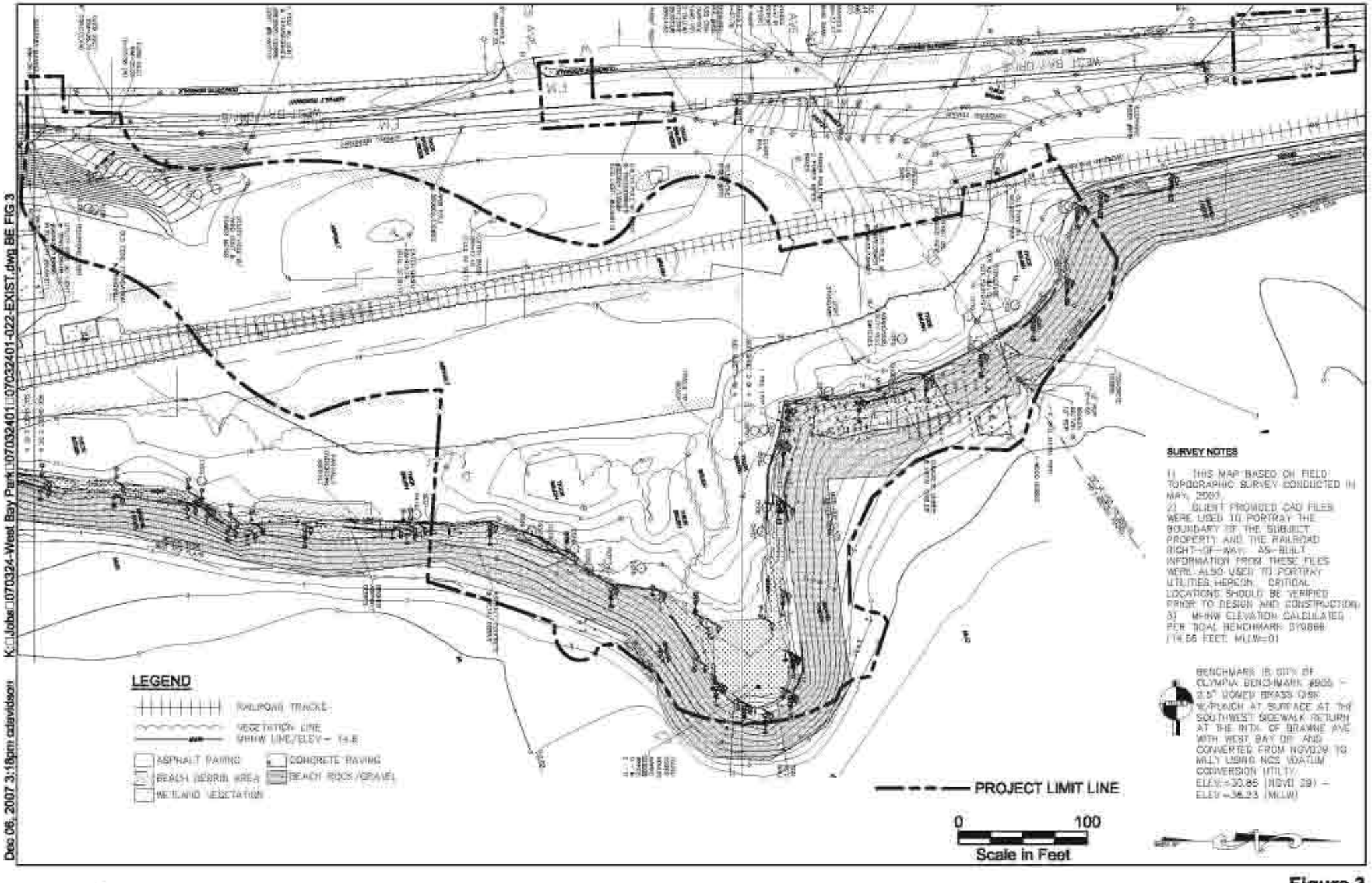
0 2000

Approximate Scale in Feet

Dec 06, 2007 8:19am cdavidson K:\Jobs\070324-West Bay Park\070324\070324-029.dwg FIG 2 BE

ANCHOR ENVIRONMENTAL, L.L.C.

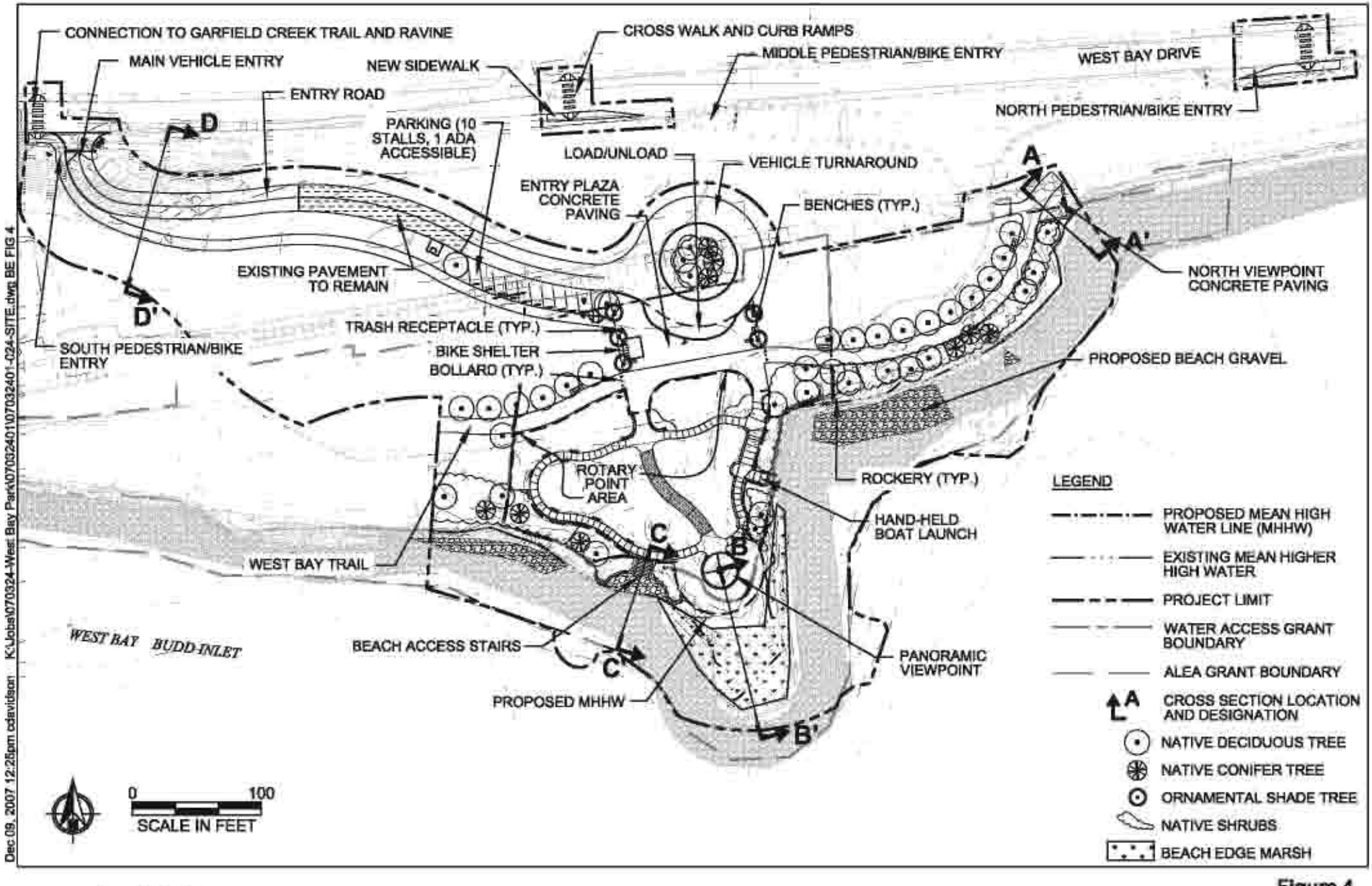
Figure 2
Action Area Boundary
West Bay Park Biological Evaluation
Olympia, Washington



Dec 06, 2007 3:18pm cdavidson K:\Jobs\070324-West Bay Park\070324011070324011-022-EXIST.dwg BE FIG 3

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 3
Existing Conditions
West Bay Park Biological Evaluation
Olympia, Washington



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ANCHOR ENVIRONMENTAL, L.L.C.

Figure 4
Site Plan
West Bay Park Biological Evaluation
Olympia, Washington

1.2. Listed Species and Evaluations

This BE evaluates the potential effects on listed species and critical habitat for compliance with Section 7(a)(2) and Section 3(5)(A) of the Endangered Species Act (ESA). Table 1 presents a summary of threatened and endangered species potentially occurring in the action area (NMFS 2007a; NMFS 2007b; USFWS 2007) with listed species under National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) jurisdiction identified based on the geographic boundaries of Distinct Population Segments (DPSs) and Evolutionary Significant Units (ESUs). The table also identifies whether critical habitat has been designated by NMFS or USFWS for those species within the project vicinity. Section 4 of this document provides details on these species and potential project effects.

Table 1
Species and Critical Habitat with Federal ESA Status
That May Occur in the Action Area

Common Name (Scientific Name)	Organism Type	Jurisdiction	ESA Status	Critical Habitat
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound ESU	Fish	NMFS	Threatened	Designated
Steelhead (*Oncorhynchus mykiss*) Puget Sound DPS	Fish	NMFS	Threatened	Under development; none proposed at this time.
Bull trout (*Salvelinus confluentus*) USA, conterminous Coastal-Puget Sound DPS	Fish	USFWS	Threatened	Designated

Killer whale (*Orcinus orca*), Steller sea lion (*Eumetopias jubatus*) and humpback whale (*Megaptera novaeangliae*) also occurred on the NMFS species lists for Puget Sound waters, but these animals are highly unlikely to occur the shallow water of the Action Area. Killer whales would not be expected to use the habitat that exists in the Action Area because it is not suitable habitat due to its shallow water depth and close proximity to shore. For this reason, neither killer whales nor their critical habitat are considered further in this BE.

Humpback whales are known to be uncommon and transient in Puget Sound (Norberg 1999) and suitable habitat does not occur in the Action Area. For Steller sea lion, there are no haul-out areas located in central or south Puget Sound, and the closest regular haul-out spot is the Race Rocks on the Strait of Juan de Fuca (NMFS 1992; Everitt et al. 1979; Norberg 1999). In addition, no occurrences of Steller sea lion in Washington state have been recorded

in the Steller Sea Lion Count Database as of April 2006 (NMFS 2006). For these reasons, humpback whales and Steller sea lion are also not considered further in this BE.

Marbled murrelets would not be expected to occur in the Action Area and no murrelet critical habitat is designated in the Action Area. The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species information has no record of species occurrence in this area and marbled murrelet aerial survey and observation information from 1993 to 2004 (WDFW 2007; PSAMP and WDFW 2004).

A summary of findings for species and critical habitat considered in this BE is provided in Table 2.

Table 2
Summary of Findings for Listed Species and Critical Habitat

Entity	ESA Status	Federal Agency Jurisdiction	Determination for Species	Determination for Critical Habitat
Chinook salmon Puget Sound ESU	Threatened	NMFS	May affect, not likely to adversely affect	May affect, not likely to adversely affect
Steelhead Puget Sound DPS	Threatened	NMFS	May affect, not likely to adversely affect	Not applicable; none proposed or designated
Bull trout Coastal-Puget Sound DPS	Threatened	USFWS	May affect, not likely to adversely affect	May affect, not likely to adversely affect

This BE also serves as a resource document for concurrent Essential Fish Habitat (EFH) consultation with NMFS in compliance with the Magnuson-Stevens Fishery Conservation and Management Act (known as the Magnuson-Stevens Act). EFH consultations are required under the Magnuson-Stevens Act for federally managed fishery species, including Chinook, pink, and coho salmon habitat as part of the Pacific salmon EFH composite. Chinook and coho salmon may occur in the project vicinity and are part of the Pacific salmon composite. This BE determines that the proposed project will have no adverse effect on Pacific salmon EFH (Appendix C).

2 PROJECT INFORMATION

The following sections provide the location, history and background, timing, and project description for the proposed work.

1.3. Location

The project site is located in the City of Olympia, Thurston County, Washington, on the western shoreline of West Bay in Budd Inlet, east of West Bay Drive, north of the 4th Avenue Bridge and south of the Reliable Steel facility (Section 15, Township 18N, Range 2W; see Figure 1). Adjacent properties include residential areas to the west and south and industrial facilities to the north and along West Bay. The site was purchased by the City of Olympia in 2006 from the Port of Olympia and from the Burlington Northern Santa Fe (BNSF) railroad in 2007.

1.4. Purpose of the Project

As stated previously, the purpose of the project is to implement the first phase of a new park on West Bay and to provide public access and to restore degraded marine shoreline in this area, including preserving and enhancing existing marsh and riparian vegetation.

1.5. Proposed Improvements

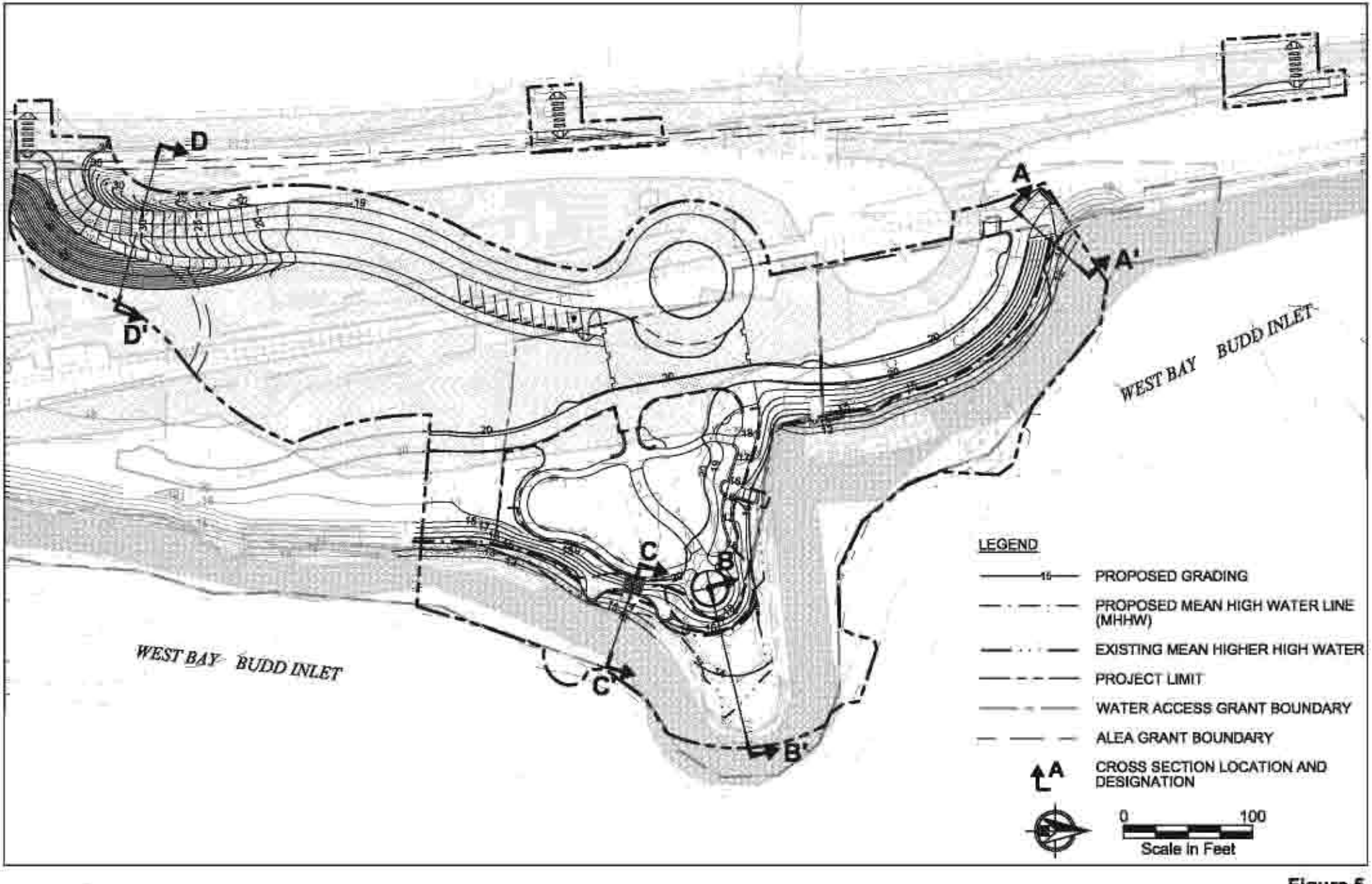
The Phase I park improvements will encompass 4 acres of the overall 17.04-acre property that was purchased by the City of Olympia. OPARD proposes to build a two-lane access driveway, parking, and turnaround with a drop-off area adjacent to a central entry plaza to accommodate public access. Approximately 530 feet of the very first segment of the new West Bay Trail, a multi-use bike and pedestrian trail, which will eventually connect downtown to the west side of Budd Inlet, will be constructed paralleling the shoreline. Other project elements include open meadows, trails, viewing and seating areas, and shoreline restoration and access. Shoreline restoration activities will include restoration of salt marsh and riparian vegetation, removal of creosote pilings and debris, and restoration of natural cobble beach materials. Olympia's Rotary Club is sponsoring a portion of this project, which will include a viewing area at Rotary Point, a hand-held boat launch, trails, lawn, and landscaped areas (see Figure 4).

Construction will begin with the removal of existing debris and clearing activities including the removal of:

- Approximately 277 pilings (see Appendix B for a list of Washington Department of Natural Resources [DNR] Piling Removal Best Management Practices [BMPs] that will be implemented)
- Concrete, asphalt, metal, and brick debris along the shoreline
- Existing above-ground concrete foundations in the intertidal zone (approximately 40 cubic yards [cy])
- Railroad tracks and ties within Phase I area, not including trestle and dike sections
- Approximately 1,259 cy of clean soil and 1,309 cy of contaminated soil from Areas A, B, and C along the rail spur as part of the cleanup action (Figures 5 through 8)
- Approximately 24 primarily non-native deciduous trees (6- to 12-inch diameter) and other non-native shrubs

Uplands and portions of the shoreline will be graded as appropriate to accommodate the proposed improvements. Approximately 2,500 cy of the fill and crushed rock materials used for the upland work on the project will be recycled from excavation and pavement removal activities on site (Figure 5). Approximately 350 cy of pre-washed rounded 2.5-inch minus beach gravel will be imported and placed to a maximum depth of 2 feet, covering a total area of 4,665 square feet (sf) below mean higher high water (MHHW). The purpose of the gravel placement is to replenish shoreline substrates where debris, pilings, and rubble had been removed, and to match existing beach slopes adjacent to improvements (Figure 4). Additional excavation and filling will occur as part of the proposed cleanup actions further detailed below (Figure 8).

Of the three existing access points, the south access point was chosen to serve as the main vehicular entrance for the new park, because it requires less fill and provides a better opportunity to meet the City's design standards for driveway intersection angles. The two other existing access points will be closed to vehicular traffic and converted to primarily pedestrian and bicycle access points only.



ANCHOR ENVIRONMENTAL, L.L.C.

Figure 5
Grading Plan
West Bay Park Biological Evaluation
Olympia, Washington

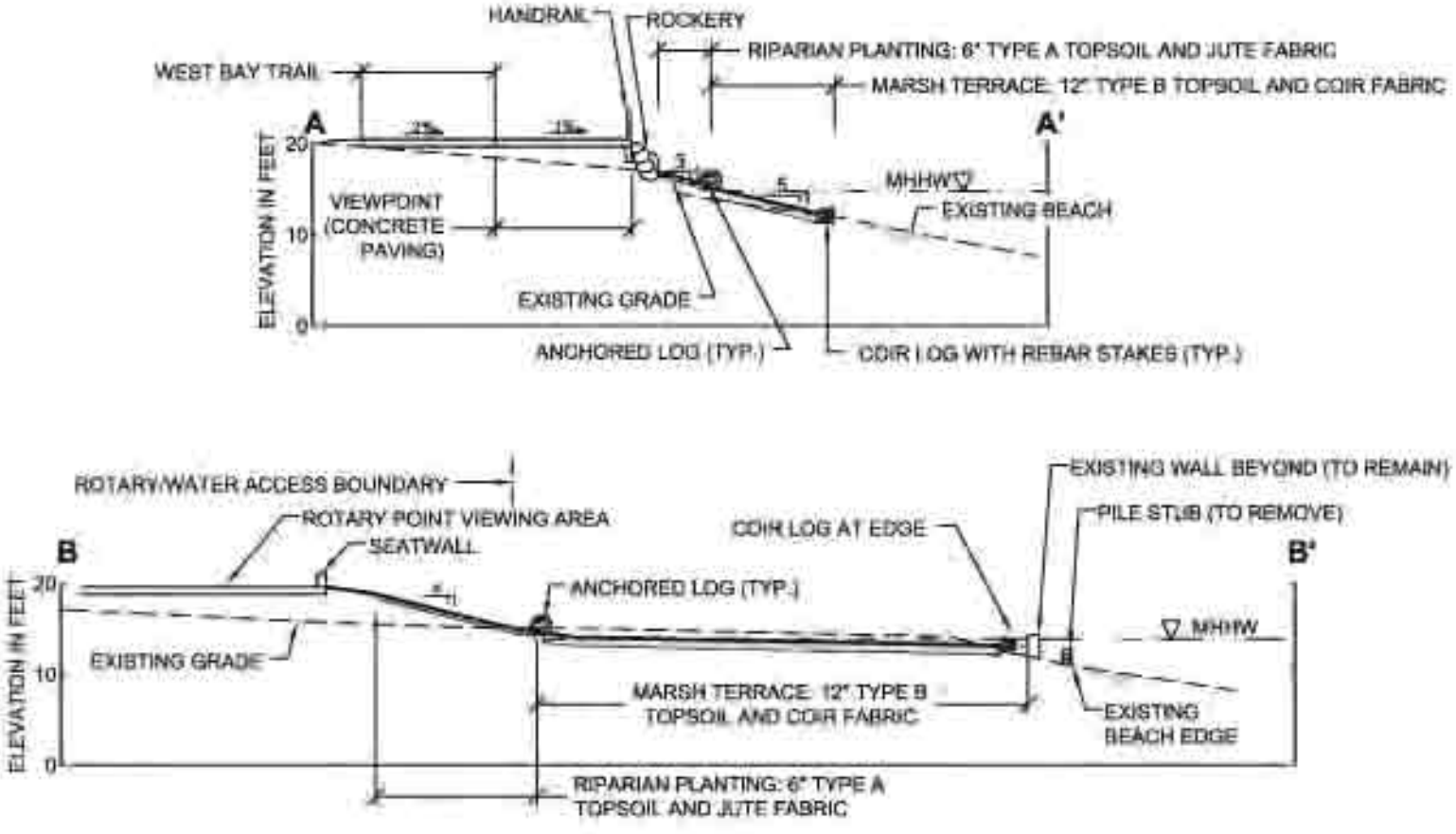


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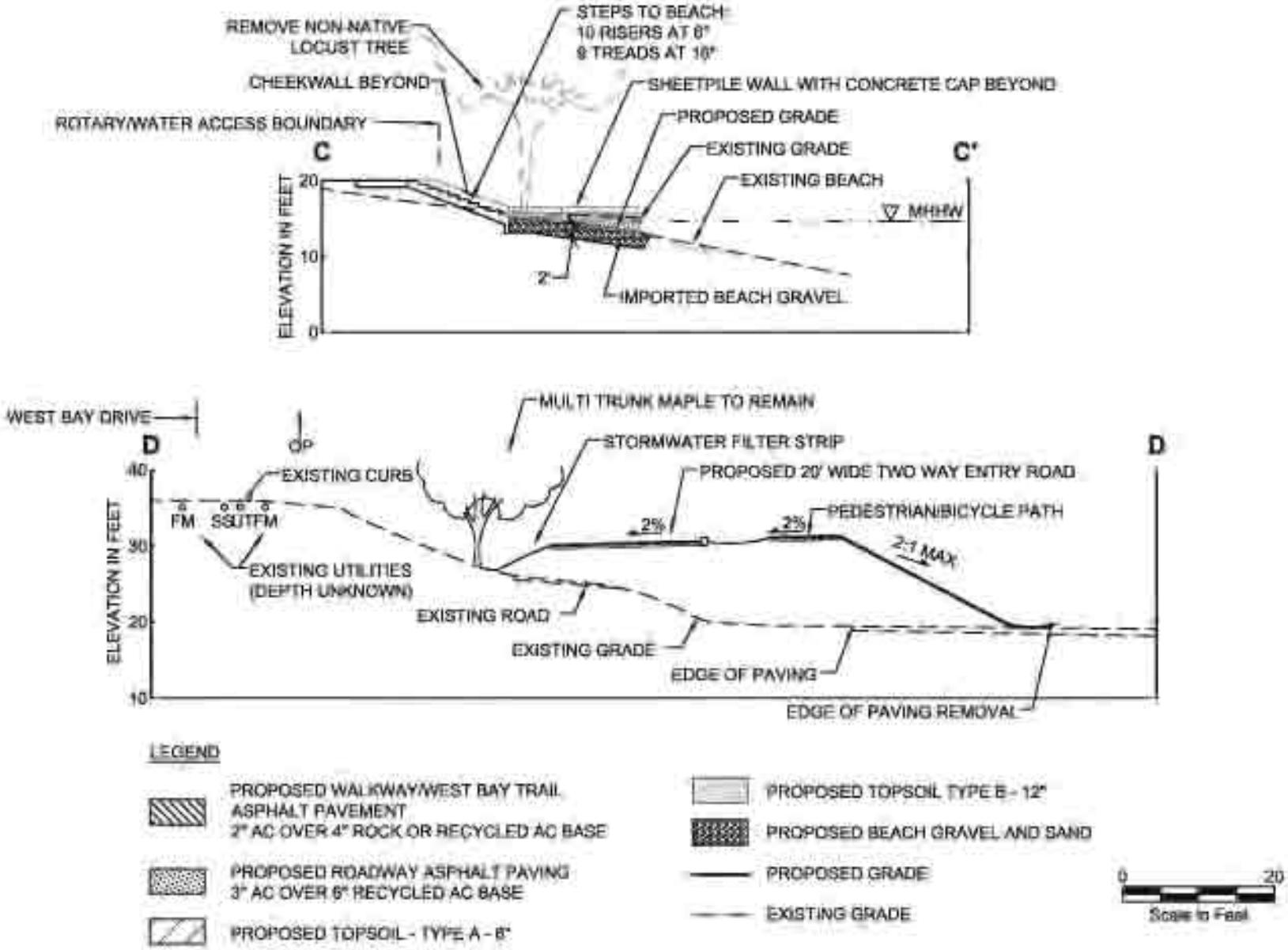
Figure 6
Cross Sections AA' and BB'
West Bay Park Biological Evaluation
Olympia, Washington



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ANCHOR ENVIRONMENTAL, L.L.C.

Figure 7
Cross Sections CC' and DD'
West Bay Park Biological Evaluation
Olympia, Washington

JACKSON AVE
MADISON
GARFIELD TRAIL
GILES AVE
BRAWNE AVE
BOWMAN AVE

AREA A
INTERIM ACTION
(SOIL EXCAVATION)

AREA C
INTERIM ACTION
(SOIL CAP OVER
RAIL ROAD SPUR)

AREA B
INTERIM ACTION
(SOIL EXCAVATION)

FORMERLOADING DOCK

FORMER
SOLID WOOD INC
(LUMBER YARD)

CONCRETE SLAB

POND

8 PUSH PROBES (SB) TYPICAL

WBTP-09
WBTP-08
WBTP-07
WBTP-06
WBTP-04
WBTP-ASH

WBGP-01
WBGP-02
WBGP-03
WBGP-04

SS-07
SS-08*
SS-09
SS-09*
SS-10*
SS-11
SS-12
SS-13
SS-14
SS-15
SS-16

SB-01
SB-02
SB-03
SB-04
SB-05
SB-06
SB-07
SB-08
SB-10
SB-11
SB-12
SB-13
SB-14
SB-15
SB-16
SB-17
SB-19
SB-20
SB-21

SD-04
SD-05
SD-06

SEEP
SEEP

OUTFALLS

20'

FORMER WOOD
HANDLING AREA

FORMER BURNER
LOCATION

PROPOSED WEST
BAY PARK PHASE I

PHASE II ESA SAMPLE ANALYSIS SUMMARY (2004 & 2007 EVENTS)

SAMPLE IDENTIFIER	SOIL	GW	SW	SED	NWTPH-G	NWTPH-Dx	VOCs	SVOCs	PAHs	METALS	DIOXIN	PEST	PCBS	HERB	TOC
SB	X					X			X	X		X	X	X	
SS	X					X			X	X		X	X	X	
SD				X							X				X
WBGP	X	X			X	X	X	X		X		X	X		
WBTP	X				X	X				X					
WBB				X	X	X				X					
SEEP			X	X	X	X		X		X					
OUTFALLS			X	X	X	X		X		X					
ASH										X	X				

LEGEND

WBGP 2004 GEOPROPE SAMPLING LOCATIONS

WBPT 2004 TEST PIT SAMPLING LOCATION

OUTFALL/SEEP 2004 SEDIMENT AND SURFACE WATER SAMPLING LOCATION

2007 PHASE II ESA SAMPLING LOCATION

RI/FS SAMPLING LOCATION (PROPOSED OR COMPLETED)

* SURFACE SOIL SAMPLE ANALYZED FOR DIOXIN AND TOC ONLY

WBB-SEDIMENT

mg/kg	MILLIGRAMS PER KILOGRAM
mg/L	MILLIGRAMS PER LITER
SD	SEDIMENT SAMPLING LOCATION
SS	SURFACE SOIL SAMPLING LOCATION
SB	SOIL BORING LOCATION

NOTES:
1. INTERIM ACTION AREAS A, B AND C SHOWN ARE BASED ON RI/FS RESULTS TO DATE AND TARGET PARK PHASE I AREA ONLY.
2. RI/FS SAMPLING LOCATIONS SHOWN WITHOUT AN IDENTIFIER ARE PROPOSED.

0 100
Scale in Feet

Feb 07, 2008 10:01am cdavidson K:\Jobs\070324-West Bay Park\07032401\070324010703240 1-030.dwg BE FIG 8

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Figure 8
Sample Location and Interim Action Areas
West Bay Park Biological Evaluation
Olympia, Washington

A new asphalt driveway beginning at the south access point and leading to a vehicle turnaround and 10-stall parking area in the central portion of the park will be constructed. Some portions of existing pavement will remain, becoming part of the new driveway (Figures 4 and 7). A new asphalt paved path will parallel the driveway leading to the entry plaza and the West Bay Trail. The segment of the West Bay Trail will be asphalt paved and will extend from the north viewing area to the Rotary area to beyond the entry plaza, for a total length of approximately 560 feet. New walking paths with concrete pavement will be constructed to encircle the Rotary Point area and lead to the boat launch area and the beach access point on the south side of the Rotary Point viewing area (Figure 4). As much as is practicable, any removed asphalt and rock material will be rotomilled and then reused as a recycled crushed rock base for the new asphalt paving. Currently, 75,841 sf of the site is covered with impervious surfaces. The final impervious surface area will be 36,857 sf, for a net reduction of 38,984 sf.

On the north side of Rotary Point, a hand-carried boat launch will be constructed to include a walking ramp terminating just above the MHHW line. This location was chosen for the launch area because of the naturally occurring gentle slope at this point along the shore. To the north of the launch area, a rockery wall will be constructed to preserve an existing big-leaf maple (Figure 4). To stabilize excavated slopes at the proposed beach access point, a low sheet pile wall with a concrete cap will be placed at the landward side of an enlarged beach area (Figures 4 and 7) on either side of the steps. This work will occur on the landward side of the existing MHHW line. Other improvements include the installation of signage, fixed and removable bollards, handrails, a bicycle shelter with bike racks, trash receptacles, and benches in the upland park area.

Shoreline and habitat restoration will include the removal of non-native and invasive plant species and native vegetation restoration. In addition, the debris and piling removal and natural gravel substrate placement, as described previously, reinforce the habitat restoration. Native trees and shrubs will be installed in the park's upland and riparian zones. Ecology lawn meadows (a water-conserving grass and herbaceous perennial seed mix) will be established in the upland areas. To ensure plant establishment, riparian vegetation and the meadow areas will be temporarily irrigated. Landscaped areas within

the Rotary Point area, and lawn areas on the east side of the proposed West Bay trail, will be permanently irrigated. Along the beach, the beach-edge marsh will be restored with additional topsoil and native salt-tolerant plant species (Figure 4). Coir fabric and coir logs and log edging will be placed to retain the topsoil and to protect new plantings until they are sufficiently established (Figure 6). Any existing wetland vegetation adjacent to this construction area will be protected from access during construction by temporary, high-visibility plastic fencing.

1.6. Remedial Investigation/Feasibility Study and Interim Action

A Remedial Investigation/Feasibility Study (RI/FS) is currently being performed as a separate action to aid in the development of clean-up actions addressing petroleum contamination detected along portions of the BNSF spur line. Negotiations with Washington State Department of Ecology (Ecology) are in progress and it is currently anticipated that RI/FS and contamination cleanup activities will be conducted under an Agreed Order between Ecology and OPARD. Cleanup under the Agreed Order (termed an "Interim Action" [IA]) will be conducted during the initial phases of the Phase I park development. All RI/FS and Interim Action activities described here are presented in detail in the project document *Work Plan for Remedial Investigation/Feasibility Study and Interim Action, West Bay Park Site, Olympia, Washington* (Parametrix 2008).

2.1.1 Preliminary Remedial Investigations Performed in December 2007

Preliminary RI/FS soil and groundwater sampling was conducted in December 2007 to investigate areas of contamination found within or near the Phase I park boundary during pre-acquisition sampling work. During the pre-acquisition work, soil and groundwater contaminated with lube-oil range hydrocarbons above Ecology's Model Toxics Control Act (MTCA) Method A cleanup levels were found in three areas of the site. Two of the areas were located within or near the Phase I park boundary. Additional soil and groundwater samples were collected at these two areas in order to determine the extent of contaminated media and to develop a cleanup approach (presented here as an Interim Action, Section 2.5.3 below). In addition, surface soil samples were collected along the rail spur within the Phase I boundary. In one of these samples, carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were detected at concentrations above MTCA Method A cleanup levels.

2.1.2 Remedial Investigations to Be Performed to Complete the RI/FS

Subsurface soil and groundwater samples will be collected from borings installed using a push-probe rig to characterize the remaining contaminated area outside of the Phase I park boundary. Information derived from this sampling will be used in additional remedial design (if warranted). Up to eight push-probes will be installed and a single soil and groundwater sample will be collected from each of the push-probes. Samples will be analyzed for the contaminants of concern (lube oil and PAHs).

2.1.3 Proposed Interim Action

The IA objective is to ultimately obtain a determination from Ecology that "No Further Action" (NFA) is required at the site to address the contamination. To achieve this objective, soil and groundwater contamination should be cleaned up to meet MTCA Method A cleanup levels for the specific contaminants. Once the cleanup is completed, compliance monitoring will be conducted to confirm that IA goals are met. The IA will consist of:

- Source removal by excavation
- In situ enhanced bioremediation of dissolved and adsorbed hydrocarbons using an oxygen releasing agent
- Placement of a 12-inch-thick soil cap as a physical barrier along the rail spur
- One year of quarterly groundwater monitoring conducted 12 months following soil excavation

2.1.3.1 Soil Removal

Source soils within the two contaminated soil areas will be removed by excavation. The actual extent of the excavation will be determined in the field by real-time observation and field screening. Once the apparent limit of contaminated soil is reached, the bottom and sidewalls of the excavation will be sampled to confirm removal. Both the overburden[1] soils and the underlying contaminated soils will be stockpiled separately and sampled. It is estimated that a total of 1,259 cy of overburden soil and 1,309 cy of underlying contaminated soil will be removed from the excavations. Soils that are confirmed clean by MTCA Method A cleanup levels

[1] Overburden refers to the material that lies above the contaminated soil of interest.

will be returned to the excavation as backfill. Dirty soils will be transported to a permitted landfill. The remaining excavation will be backfilled with clean pit run.

2.1.3.2 Residual Plume Treatment

One of the two contaminated soil areas contains groundwater with contaminant levels above MTCA Method A cleanup levels. In this area, a predetermined amount of oxygen releasing agent (ORA) will be spread evenly over the base of the excavation at the completion of excavation and before backfilling begins. ORAs are available in powder form and can be spread using a backhoe arm. It is critical that the ORA is placed at sufficient depth so that it remains submerged beneath the groundwater table for most of the year. The ORA will slowly provide dissolved oxygen (DO) to the groundwater for about one year (typically). The enhanced DO will encourage destruction of residual hydrocarbons in soil and groundwater through supporting naturally-occurring aerobic bacteria in the soil.

2.1.3.3 Groundwater Monitoring

Four new groundwater monitoring wells will be installed to monitor groundwater concentrations and the performance of the ORA. The wells will be located to allow for monitoring of upgradient conditions, conditions near the former soil source area, and downgradient conditions. The wells will be installed with 10-foot screened sections that span the groundwater water table interface. It is anticipated that a screened interval of from approximately 4 to 14 feet bgs will be appropriate.

Groundwater monitoring will be conducted quarterly starting 1 year following application of the ORA. Sampling for 1 year will be conducted to assess the effectiveness of the cleanup and evaluate the need for further monitoring.

2.1.3.4 Soil Cap

Surface soils along the rail spur within the Phase I park boundary will be capped with a physical barrier of soil a minimum of 12 inches thick to prevent direct contact. The cap will extend a minimum of 5 feet horizontally from each outside edge of the steel rails. The soil cap will consist of a combination of clean fill and topsoil. Asphalt, steel rails, and rail ties will be removed prior to capping. Steel rails will be

salvaged. Rail ties will be disposed of at the same permitted upland landfill as the contaminated soil. A geotextile fabric barrier layer will be placed beneath the cap as a marker. The soil cap will be vegetated and incorporated into landscaping for the new park.

1.7. Construction Methods

Removal of the existing concrete foundations and debris is expected to occur from land using either a track hoe excavator with a "thumb" on the bucket or a crane and clamshell bucket. All demolition materials, except crushed rock and asphalt paving materials that will be reused, will be exported from the site by dump truck or by barge and will be hauled to an appropriate upland disposal facility.

Upland grading is expected to be completed using typical upland construction equipment, such as a track hoe excavator, front end loader, dump truck, and bulldozer. It is anticipated that placement of gravel material will occur from land, and a dump truck or front-end loader will be used to place the new beach gravel along the shoreline. It is expected that material will be spread in the dry using a bulldozer or tracked excavator with an I-beam. The machinery used will operate at low tide in the dry so that it can push the gravel material to the edge of the water without entering the water.

Construction equipment and materials will be transported to the site by truck, and activities will be staged from upland areas. Installation of the sheet pile wall is anticipated to be completed using a backhoe. A trench would be excavated and the sheet pile would be installed with the backhoe bucket and labors, and then backfilled and compacted. All upland pavement and concrete installations will be constructed using standard cast-in-place concrete and asphalt construction methods, and there will be no concrete installations below MHHW.

All construction for the interim measures will occur in the upland and will be completed from the upland using typical upland construction machinery. This machinery will not be allowed to enter the water and will be decontaminated using typical procedures for cleanups of this nature. Contaminated soil that will be removed is anticipated to be transported to the appropriate landfill using trucks from the upland.

2.1.3.5 Minimization Measures and BMPs

Minimization measures and BMPs will be used during project construction to limit impacts to listed species.

Minimization measures to be used will include:

- In-water work will be restricted to the WDFW in-water work window, set for when salmon, steelhead, and bull trout are unlikely to be present or would be present in low numbers. This in-water work window extends from July 16 to February 15 (U.S. Army Corps of Engineers [Corps] work window).
- No concrete pouring or curing will occur below MHHW.
- Trees to remain on site will be protected with temporary tree protection fencing during construction.
- Existing wetland vegetation adjacent to the construction area will be protected from access with temporary orange plastic fencing.
- Beach substrate to be placed will occur only in areas where substrate disturbance will already occur due to piling/debris removal and where foot traffic will be high. New substrate will consist of pre-washed beach gravel with low fines.

BMPs to be used will include:

- An emergency spill containment kit will be kept on site ready for prompt use should accidental spills occur in the water from construction equipment and/or debris.
- Creosoted piling and associated materials that are removed will be taken to an upland facility approved for disposal of this type of material.
- Debris booms will be present at the site during in-water work such as pile extraction and concrete foundation demolition in order to contain any floating debris.
- Appropriate material (e.g., oil pads, oil boom) will be available and used to contain or remedy any sheen that appears on the water surface following pile extraction.
- Construction barges will be placed at sufficient depths so as to not ground out during low water conditions.

As previously noted, additional BMPs for piling removal that will be implemented are provided in Appendix B. Additional measures that will be employed include compliance with all of the Washington State Surface Water Quality Standards (WAC 173-201A); General Occupation Health Standards (WAC 276-62); and all regulatory permit conditions, including the Clean Water Act Section 404 permit, Ecology Section 401 Water Quality Certification, and WDFW Hydraulic Project Approval.

2.1.4 Action Area and Project Area

The *Project Area* is the area where work activities are proposed and includes all areas within which project construction will occur. For this project, this includes the area within the project limit, including the sections of West Bay Drive that intersect the boundary (project limit shown on Figure 3).

The *Action Area* is defined as the area to be affected directly or indirectly by the federal action (50 CFR §402.02). In-water noise impacts are typically the basis for setting the extent of the Action Area in aquatic areas. In this project, work in the Action Area will be performed outside the water to the greatest extent possible, but some activities, such as piling removal, must occur in water. However, vibratory methods will be used for piling removal and sheet pile installation, and significant in-water noise impacts (such as impact pile driving) are not expected. Therefore, the extent of the aquatic portion of the Action Area for this project is defined on the basis of expected water quality impacts in aquatic areas. To be conservative about the extent of expected water quality impacts to listed fish species, the Action Area will include a water quality (i.e., turbidity) boundary at a radius of 150 feet from the point where shoreline work is occurring. This distance defines a typical mixing zone determined by Ecology to comply with state water quality standards (WAC 173-201A-110). The aquatic portion of the Action Area will therefore extend laterally 150 feet into the aquatic area from the shoreline (shoreline defined by the MHHW line) (Figure 2).

The terrestrial portion of the Action Area will be set based on potential effects of in-air noise due to the project. There have been no noise studies in the vicinity of the project; however, based on expected general conditions in the area (e.g., vessel traffic) and the

fact that no impact pile driving will occur, it is estimated that peak baseline noise levels at the project site would be in a range similar to light auto traffic (approximately 50 decibels [dB]). The following assumptions are made:

- According to the standard reduction for point source noise, airborne noise generated by the project will attenuate at a rate of 6 dB per doubling distance.
- Typical project airborne noise level (measured at 50 feet from the source) from construction equipment will be 90 dB (WSDOT 2006).

Based on these assumptions, peak airborne noise levels will decrease to ambient airborne noise levels within 3,200 feet (0.6 mile). Therefore, the aquatic portion of the Action Area will therefore extend laterally 0.6 mile into the air from the park (Figure 2).

1.8. Timing

The project is expected to occur in 2008. To protect listed fish species, timing for in-water work in the project area extends annually from July 16 to February 15 (Corps work window); thus, in-water construction activities would occur between these dates. In-water work is proposed to occur in 2008 during this work window, when salmonids are unlikely to be present in the Action Area or may be present in low numbers. Forage fish spawning windows (surf smelt and sand lance) in the project area extend from April 1 to June 30. However, forage fish are not expected to occur in the Action Area (see Section 3.1.4), so these spawning windows will not be further considered for project timing. The project is expected to take approximately 8 weeks of in-water work and 12 total weeks to complete.

3 ENVIRONMENTAL BASELINE

In general, baseline conditions in the Action Area reflect a history of modifications to the shoreline of Budd Inlet and West Bay. Past forest products milling operations at the site have been discontinued and most upland and shoreline structures have since been demolished. The site is currently vacant and has three existing vehicle entry points closed with locked gates to prevent public access. The park upland sits primarily on fill material and most of the upland areas are paved with asphalt (Photo 1) and bisected by decommissioned BNSF railroad tracks. During the pre-acquisition work, contaminated soil and groundwater was found along the rail tracks on the property including within the Phase I park boundary (for more detail see the section titled "Remedial Investigation/Feasibility Study and Cleanup Actions").

Photo 1
Overview of upland area, looking south; invasive vegetation and concrete roads/pads are visible in the foreground and upper left

The current shoreline consists of a cobble beach but contains areas of concrete, asphalt, metal, and brick debris, as well as derelict piling from past industrial uses. The shoreline vegetation is a mix of native and non-native species. The shoreline is not generally armored except for a low concrete wall in one section of the shoreline. Downtown Olympia and the State Capitol building can be viewed from many locations within the property (Photo 2)

Photo 2
Overview of park shoreline, looking south toward Capitol building

To evaluate the environmental baseline of the project area, a site visit was conducted by Anchor ecologists (May 10, 2007; Anchor 2007), and state and federal information was accessed for conditions near the project. This BE bases its assessment of project effects (see Section 4) on a set of ecological conditions in the Action Area that may affect listed species. The following sections describe the environmental baseline relative to these ecological conditions, grouped below as biological, physical, and chemical conditions.

1.9. Biological Conditions

3.1.1 Vegetation

West Bay Drive, which is located parallel to the project shoreline, separates the park vegetation from the hillside landward of the park, which contains mature conifers and large deciduous trees. Within the park, upland vegetation includes mostly immature trees and shrubs, including abundant amounts of invasive Himalayan blackberry (*Rubus discolor)* and Scotch broom *(Cytisus scoparius*); this vegetation is interspersed with roads and areas of concrete paving throughout the park (Photo 2). Dominant shoreline vegetation includes, again, Scotch broom and Himalayan blackberry, with occasional

ornamental cherry trees and miscellaneous grasses (Photos 1 and 3). The area near Rotary Point includes a relatively intact strip of salt-tolerant vegetation such as pickleweed (*Salicornia virginica*) and sea plantain (*Plantago maritima*), as well as miscellaneous grasses and weeds (Photo 4). Eelgrass (*Zostera L)* does not occur at the site, as it does not occur in the extreme reaches of the South Puget Sound, including Budd Inlet (WDNR 2001).

Photo 3
Typical shoreline vegetation conditions, looking south along park property

Photo 4
Salt-tolerant vegetation on Rotary Point, looking northwest toward residential areas

3.1.2 Non-Listed Fish and Wildlife

The project area provides habitat for non-listed fish and wildlife species, in addition to those species with federal and/or state status. WDFW has indicated that state priority species that may occur near the project include harbor seal, wood duck, great egret, peregrine falcon, osprey, purple martin, and shorebirds such as greater yellowlegs and sandpiper (WDFW 2007). Birds observed during site visits to the property were crows, gulls, robins, and sparrows.

3.1.3 Epibenthic Salmonid Prey

Growth and survival of juvenile salmonids depends to a large extent on the availability of epibenthic prey organisms (Simenstad et al. 1982). Because juvenile salmonid epibenthic prey organisms typically favor smaller sand/mud substrates, and the Action Area exhibits mostly cobble and large gravel, the Action Area would not be expected to contain a high abundance of these prey organisms (see Section 3.2.1).

3.1.4 Forage Fish Spawning

WDFW has not identified any documented forage fish spawning areas in the Action Area. There is a documented spawning beach for surf smelt north of West Bay Marina, about 1.5 miles north of the park, and a sand lance spawning area on the opposite side of Budd Inlet north of East Bay, about 1.5 miles northeast of the park (WDFW 2007). There have been no surveys of the Action Area beaches for forage fish spawning, but spawning would not be expected to occur in the Action Area because suitable substrate for forage fish spawning are small, whereas substrate sizes present at the site are cobble and large gravel (Herrera 2005; and see Section 3.2.1).

1.10. Physical Conditions

3.1.5 Shoreline Armoring, Substrate, Slope, and Water Depth

Very little shoreline armoring is present along the Action Area shoreline; however, in several areas, the low concrete wall is exposed to the shore (Photo 5). The dominant naturally-occurring substrate size is large gravel and cobble (Photo 5 and 3), but there is also a substantial amount of concrete, asphalt, metal, and brick debris in places (Photo 7), along with many derelict piles (Photo 8 and 9).

Photo 5
Beach and intertidal substrate sizes and concrete wall, looking north

Photo 6
Beach and intertidal substrate sizes and scattered debris, looking west

Photo 7
Beach substrate and debris

Photo 8
Beach substrate, concrete debris, and derelict piling, looking south

Photo 9
Derelict pilings in shoreline area, looking north

Shoreline slopes in the Action Area are approximately 5:1 in the upper intertidal and then grade down to a large flat (approximately 2:1) in the shallow water area exposed at low tide (Photo 1). Elevations in the Action Area range from +14.6 feet at MHHW to approximately +3 feet MLLW. Moderate to severe shoreline erosion is occurring in several areas (Photo 10).

Photo 10
Erosion at the park shoreline, looking southwest

3.1.6 Large Woody Debris

LWD along marine shorelines helps prevent erosion, promotes sediment accumulation, and provides diverse habitat (Herrera 2005). In the Action Area, LWD is present but sparse (Photos 1 and 11), which has been attributed to a lack of source LWD from the adjacent riparian area and elsewhere in the vicinity (Herrera 2005).

Photo 11
Large woody debris accumulations at the park shoreline

3.1.7 Existing Structures

Existing structures in the Action Area include the low concrete wall and roads in the upland, as well as several concrete foundations/blocks in the intertidal zone. Numerous creosote-treated piles are also present in the Action Area (approximately 277 piles).

1.11. Chemical Conditions

3.1.8 Water Quality

West Bay Park is located within Budd Inlet, which is a persistently stratified, urbanized bay that exhibits associated water quality problems. Budd Inlet was described as an "area of highest concern" based on indices of water quality in Ecology's Washington State Marine Water Quality report (Ecology 2002a) and again in the 2007 Puget Sound Update (PSAT 2007). The 2002 Puget Sound Update had reported that Budd Inlet could be improving, but in 2007 Ecology stated that the region continues to be a concern, because of strong stratification, very low dissolved oxygen, high fecal coliform levels, and moderate levels of dissolved organic nitrogen and ammonium (PSAT 2007).

Water quality in the project area is also affected by its proximity to the outlet of the Deschutes River, which has been dammed since 1951 to create the reservoir of Capitol Lake. The dam blocks the tidal flow of Budd Inlet, as well as the free flow of the Deschutes River, and water quality conditions in the south inlet have thus suffered. The following section describes specific water quality conditions measured at stations near the park.

3.1.8.1 Dissolved Oxygen and Temperature

Budd Inlet has one of the lowest dissolved oxygen levels within South Puget Sound (Ecology 2002b and PSAT 2007). Inner Budd Inlet, where West Bay Park is located, is listed on Ecology's 303(d) list for dissolved oxygen. Combining data from monitoring stations used in the 2004 303(d) listings for Inner Budd Inlet, 122 out of 309 samples between 1992 and 1994 (39 percent) and five out of 37 stations between 1993 and 2000 (13 percent) were outside current criteria for dissolved oxygen (Ecology 2004). Ecology (2002b) reports that this level may induce biological stress. Ecology has also measured dissolved oxygen at monitoring station BUD005, which is close to the project area, for the years 1999 to 2006.

Ecology monitoring also reported temperature ranges at station BUD005. For winter/spring timeframes (November through April), the average temperature was 9.5 degrees C with a maximum of 15.5 degrees; for summer/fall periods (May through October), the average temperature was 14.5 degrees C, maximum 22.3 degrees (Ecology 2007).

3.1.8.2 Water Clarity

No data were available for turbidity measurements nearby the project area. However, conditions in the vicinity indicate that water clarity is variable depending on season and primary productivity of the inlet. Recent water clarity measurements taken by Ecology (2000 to 2006) at station BUD 005 near the project area show that light transmission percentages in the water column during winter/spring timeframes (November through April) were 62 percent on average, with a maximum of 88 percent and a minimum of 0 percent. For summer/fall periods (May through

October), light transmission percent was 53 percent, with a maximum of 84 percent and a minimum of 0 percent.

The eroded shorelines of the Action Area suggest that the park shoreline, at least tidally and seasonally, experiences periodic turbidity events due to high wind and wave exposure at the shoreline. Because sediment transported by the Deschutes River and Percival Creek is now trapped by the dam at the outlet of Capitol Lake, and the lake is slowly filling with sediment (WSDGA 2002), current suspended sediment levels are likely lower than historical levels.

3.1.8.3 Water Contamination

Inner Budd Inlet, near the project area, is not currently listed on Ecology's 303(d) list for any chemical contaminants, nutrients, or bacteria. However, an analysis of water quality from 1998 to 2000 stated that in Budd Inlet in general, fecal coliform bacteria have been problematic (counts of greater than 14 organisms per 100 milliliters of water during at least one month in each wateryear from 1990 through 2000; Ecology 2002a). Ecology (2007) reports that Budd Inlet has one of the highest levels of fecal contamination in Puget Sound.