STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
The City of Gig Harbor	No. DE 5597
Regarding: Eddon Boat Park Ecology Facility Site No. 1301959	

TO: Steve Misiurak, City Engineer
City of Gig Harbor
3510 Grandview Street
Gig Harbor, WA 98335

TABLE OF CONTENTS

I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and the City of Gig Harbor (hereafter referred to as "the City") under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This order requires the City to perform actions to remediate contaminated sediments and soils at the Eddon Boat Park site in Gig Harbor, Washington, in accordance with the Cleanup Action Plan included as Exhibit B to this order. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. The City agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter the City's responsibility under this Order. The City shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Site: ~~The Site is referred to as Eddon Boat Park and is generally located at 3711~~ and 3805 Harborview Drive, Gig Harbor, Washington. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. Based upon factors currently known to Ecology, the Site is more particularly described in the Site Diagram (Exhibit A). The Site constitutes a Facility under RCW 70.105D.020(5).

B. Parties: Refers to the State of Washington, Department of Ecology and the City of Gig Harbor, Washington.

C. Potentially Liable Person (PLP): Refers to the City of Gig Harbor, Washington.

D. Agreed Order, Order or AO: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

E. CAP: Refers to the Cleanup Action Plan developed for this site and included as Exhibit B to this Agreed Order.

F. cPAH: Refers to carcinogenic polycyclic aromatic hydrocarbons.

G. TPH: Refers to total petroleum hydrocarbons.

H. TBT: Refers to tributyltin.

I. mg/kg: Refers to milligrams per kilogram.

J. ug/kg: Refers to micrograms per kilogram.

K. ug/l: Refers to micrograms per liter.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by the City:

A. The Eddon Boat Park property consists of the upland, intertidal, and subtidal portions of Pierce County tax parcels 022105-3074 and 022105-3050. The property comprises approximately three acres, with roughly one third of the land uplands and the remainder consisting of tidal and subtidal lands. The site includes this property and portions of adjacent properties where contamination from the facility is found.

B. The City purchased the property in March, 2005. The funds for purchase of the property were raised through a Land Acquisition and Development General Obligation Bond approved by the voters of the City. The land was purchased with the intention of developing it into a park, including preservation of the historic boatyard facilities.

C. The City entered Ecology's Voluntary Cleanup Program in 2005 to receive technical assistance from Ecology for the site investigation and cleanup planning. Under the Voluntary Cleanup Program, the City submitted to Ecology several Technical Memoranda addressing site investigations and interim remedial actions. In the early part of 2008, Ecology and the City decided to enter into this Agreed Order for completion of the remedial actions at the site. A summary of the Technical Memoranda and the opinions issued by Ecology are included in Exhibit C. The site investigations and remedial actions taken prior to the issuance of this Agreed Order are also described below in paragraphs K through V of this section.

D. The north parcel of the property was operated as a boat building and repair facility beginning in the 1940's and continuing until the City purchased the property in 2004. There is a two-story wood frame boat repair building on the northernmost portion of the property. An older house with a wooden deck is present to the south of the boat repair buildings. A 500 gallon

above-ground heating oil tank was present near the boat shop, and a 500 gallon underground heating oil tank was present next to the residence. These tanks are no longer present.

E. Two boat haul out railways are present. One railway enters a roofed shed attached to the waterward edge of the building. The second railway lies alongside and to the south of the first. Both railways extend into the intertidal marine area to approximately 0 feet mean lower low water tidal level (0' MLLW). The boat haul out rails and carriage assembly are of historic value to the future park. Although these structures are slated to be removed to facilitate the sediment cleanup, the City plans to replace them in the future.

F. A 120 foot long pier extends over the tidelands and is connected to a floating dock with ramp/gangway. The elevation of the subtidal lands below the floating dock are approximately minus 4 to minus 6 feet MLLW. The pier and dock are also of historic value to the future park. Although these structures are slated to be removed to facilitate the sediment cleanup, the City plans to replace them in the future.

G. There were two buildings on the south parcel that were demolished by the City in 2006. The building formerly in the middle of the site was a concrete block structure with a covered carport that was present on the site since the 1950's. At one time this was used as a City maintenance shop. It was most recently was used as a retail antique shop. This building is referred to in the project documents as "Pandora's". The building formerly on the southernmost part of the site is believed to have originally been part of a gravel loading operation and was most recently used as a retail shop, referred to in the project documents as "Wild Birds Unlimited". There were several concrete retaining walls behind this building that are believed to have been associated with the gravel loading operation. There were also remnants of a gravel loading crane assembly adjacent to a bulkhead at the south part of the site.

H. The City demolished the former maintenance shop building and the former gravel operation building, cleared brush, and graded and seeded the southern part of the site in 2006.

I. Two old wooden bulkheads remain at the shoreline of the south part of the site.

J. Habitat improvements are integrated into the project plans for the sediment and upland remediation. Specifically, the two wooden bulkheads will be removed, and the land will be graded to gently slope to the harbor. This will increase the upper intertidal acreage, and create a 'pocket' estuary. The new shoreline bank will be covered with habitat-friendly substrate.

K. A terrestrial ecological evaluation (TEE) was prepared for the project in March 2008 (Technical Memorandum No. 10). A simplified TEE was appropriate for this site based on the criteria in WAC 173-340-7490 through 7493. The simplified TEE compared site data to the screening levels provided in Table 749-2 of the MTCA. One sample in surface soil exceeded the screening level for copper and one surface sample exceeded the screening level for chromium. Ecology concurred with the conclusions of the simplified TEE report that these individual exceedances do not represent overall site conditions, and that site grading that occurred in preparation for park development has very likely diminished the concentrations at the two individual locations significantly.

L. Between 2005 and 2008, the City submitted several technical memoranda and other documents to Ecology summarizing sampling activities and interim remedial actions that have been taken at the site (refer to Exhibit C). Ecology identified ten areas of concern from its review of the site investigations. These are summarized below and discussed in more detail in the following subsections of this Order. Ecology has determined that the Site has been adequately investigated and that cleanup actions can be selected and implemented.

1. 500 gallon underground heating oil tank near the residence.

2. 500 gallon above ground heating oil tank near the boat shop.

3. Elevated heavy oil petroleum hydrocarbons and elevated lead in surface soils underneath covered carport of former maintenance shop ("Pandora's") building. This area was represented by soil boring "**AG-8**".

4. Fruit tree and yard area. Ecology expressed concern about potential for arsenic or lead contamination from the potential historic use of arsenical pesticides, or from the areawide contamination resulting from aerial deposition from the former Asarco copper smelter in Tacoma.

5. An area below the former Pandora's building where a discarded oil storage tank had been found during brush clearing, and later test pits unearthed three used oil filters. This area was known as the **"Lower Terrace"** area.

6. Potential for oil contamination from the former gravel operation's crane area adjacent to the south bulkhead.

7. An area on the adjacent property to the north, just outside of the north side door to the boat shed containing elevated carcinogenic polycyclic aromatic hydrocarbons (cPAH). This area was represented by soil boring **"AIIA-1"**.

8. An area at 8 – 10 feet below ground surface on the central/east part of the site containing elevated cPAH. This area was represented by soil boring **"AG-9"**.

9. Site Groundwater.

10. Contaminated sediments throughout the tidelands of the property, with the highest levels of contaminants in the vicinity of the marine railways. Some areas of contaminated uplands soils were also identified in areas that could present a source of contamination to sediments.

M. Underground Heating Oil Tank. A 500 gallon underground heating oil tank (UST) next to the residence was removed in March, 2006. Results were presented to Ecology in a letter of May 3, 2006 and in Technical Memorandum No. 4, June 12, 2006. Samples were obtained from the bottom and sidewalls of the final excavation, after approximately 3 feet of overexcavation in an area where initial samples contained cPAH. Water seeping into the excavation was also sampled. No total petroleum hydrocarbons (TPH) or cPAH were detected above the MTCA Method A groundwater or soil cleanup standards for unrestricted land use. Ecology issued an opinion letter through the Voluntary Cleanup Program on June 29, 2006 stating that the UST removal and cleanup met the substantive requirements of MTCA for characterizing and addressing this release. The UST excavation included soils represented by boring AG-5, which contained elevated cPAH (0.417 mg/kg total toxicity equivalent concentration, compared to the MTCA soil cleanup standard for unrestricted land use of 0.1 mg/kg).

N. Above-Ground Heating Oil Tank. This 500 gallon above ground heating oil storage tank (AST) was located at the southwest corner of the boat repair shop. It was removed some time between 1999 and 2005. In August of 2006, a boring was installed close to the former AST to a

depth of 6.5 feet. Samples were obtained from the boring at 4-5 feet and 5-6 feet below ground surface, and from a post hole excavation directly beneath the former tank at 1 foot depth. Soils were tested for TPH and cPAH. All samples were below the MTCA Method A, soil cleanup standards for unrestricted use. Results of AST samples are found in Technical Memorandum No. 7, October 2006. As the City did not request one, no Opinion Letter was provided on Technical Memorandum No. 7.

O. "AG-8" area: Soil boring results for boring AG-8, presented in the Data Assessment and Conceptual Cleanup Plan (August, 2005), showed that the area underneath the covered carport behind the "Pandora's" building contained elevated TPH and lead in the surface soils. The concentrations detected were 2,535 mg/kg TPH and 586 mg/kg lead, compared to the MTCA Method A soil cleanup standard for unrestricted land use of 2000 mg/kg TPH and 250 mg/kg lead. The City excavated 2 feet of soil from an approximately 250 square foot area. Samples from the sidewalls and bottom of the excavaton confirmed that the hydrocarbon and lead-containing soils were successfully removed. A summary of this removal action and confirmation sampling data are found in Technical Memorandum No. 4, June, 2006. Ecology issued an opinion letter through the Voluntary Cleanup Program on June 29, 2006 stating that AG-8 area remediation met the substantive requirements of MTCA for characterizing and addressing this release.

P. ~~Fruit tree and yard area. Ecology requested sampling in this area to identify arsenic or~~ lead contamination from the potential historic use of arsenical pesticides, or from the areawide contamination resulting from aerial deposition from the former Asarco copper smelter in Tacoma. In consultation with Ecology, the City obtained a 5-point composite sample of the orchard area in March, 2006. The results were all below the MTCA Method A unrestricted soil cleanup standards. A summary of this sampling is found in Technical Memorandum No. 4, June, 2006. Ecology issued an opinion letter through the Voluntary Cleanup Program on June 29, 2006 stating the sampling and results met the substantive requirements of MTCA for characterizing and addressing this area.

Q. Lower terrace area. During brush clearing in spring of 2006, the City discovered a discarded oil storage tank. The tank was pumped out, cleaned, and recycled. Ecology requested the City to dig test pits in this area to determine if other contaminants were visually present. In one test pit, three used oil fileters were discovered. Three additional test pits were excavated and samples obtained for volatile organics, PAH, TPH, and metals. All results were below the MTCA Method A unrestricted soil cleanup standards. A summary of this sampling data is found in Technical Memorandum No. 4, June, 2006. In the Ecology June 29, 2006 opinion letter, Ecology stated that sampling in this area met the substantive requirements of MTCA for characterizing and addressing this potential release area.

R. Crane Area. Ecology requested the city to evaluate the area where the former gravel loading crane was operated, on the terrace above the southernmost bulkhead. After the City cleared the brush from this area, Ecology inspected the area for signs of oil staining or other evidence of contamination that may have resulted from the operation of the crane. After a site walk on March 20, 2006, Ecology informed the city that no further investigation would be required in this area.

S Area AHA-1. Results of samples taken at boring AHA-1 were presented in the Data Assessment and Conceptual Cleanup Plan report, August 2005. Samples at the 1.5 – 3 foot depth contained a total toxicity equivalent cPAH concentration of 0.384 mg/kg, compared to the MTCA Method A soil cleanup level for unrestricted land use of 0.1 mg/kg. This area is just outside of the north side door to the boat shed. The CAP presents the details for cleanup and confirmational monitoring of this area.

T. Area AG-9. An initial boring in this area, presented in the Data Assessment and conceptual Cleanup Plan (August 2005) found cPAH above the MTCA Method A soil cleanup standard for unrestricted land use at a depth of 8-10 feet at this location (0.378 mg/kg total toxicity equivalent cPAH concentration, compared to the MTCA soil cleanup standard of 0.1 mg/kg). In August of 2006, Anchor Environmental installed a monitoring well at the same location of the AG-9 boring, and also installed two soil borings close to the well (approximately

20 feet to the north and to the south of the well). Logs from all three borings show that there is a layer of "charred wood, black, greasy texture" at 8-10 feet below ground surface Carcinogenic PAH were detected above the MTCA Method A soil standard for unrestricted land use (0.1 mg/kg) in this layer at all three borings (GP-2, 0.181 mg/kg; GP-3, 0.252 mg/kg; MW-3, 0.109 mg/kg). At boring GP-2, a sample obtained from beneath the layer of charred wood debris, at 13 feet below ground surface, did not exceed the cPAH standard and did not contain evidence of charred wood debris. Results of the August 2006 borings are found in Technical Memorandum No. 7, October, 2006. The CAP presents the selected cleanup action and confirmational testing requirements during construction.

U. Site Groundwater. Three groundwater monitoring wells were installed at the site in August, 2006. The locations of the wells were chosen in consultation with Ecology staff Locations included MW 1, near the shoreline and also close to the former underground heating oil tank; MW-2, close to and downgradient of the former above ground heating oil tank at the southeast side of the boathouse; and MW-3, located in the central area of the site where a site boring installed in 2005 had contained elevated levels of cPAH in soils at 8 – 10 feet below ground surface Details about well installation and rationale for well locations are found in Technical Memorandum No. 7, October 2006. Groundwater samples were obtained on 8/4/06, 2/20/07, and 5/24/07. Sample results are summarized in Technical Memorandum No 8, March 2008. In MW-2, arsenic was present at levels from 5.9 to 6.8 micrograms per liter (dissolved), slightly above the MTCA Method A criteria for arsenic in groundwater of 5 micrograms per liter (which is based on background concentrations of arsenic in groundwater) MW-1, closer to the harbor, contained low levels of detectable arsenic, below the MTCA Method A criteria for groundwater, and also below the Marine Chronic Ambient Water Quality Criteria for protection of marine life of 36 micrograms per liter. In MW-3, where cPAH were identified in soils at the 8-10 foot depth, no cPAH were detected above the Ambient Surface Water Quality Criteria for protection of aquatic life (set forth under Section 304 of the Clean Water Act) or for protection of human health from consumption of organisms (set forth under the National Toxics Rule, 40 CFR 131).

V. Sediments: Initial sediment sampling results were presented in the Data Assessment and Conceptual Cleanup Plan (August, 2005). Additional sediment samples were obtained in October of 2006 and in July of 2007, and are presented in Revised Technical Memorandum No. 2 (February 2007) and in Technical Memorandum No. 9 (August, 2007). The sediment sampling showed that the sediments in the vicinity of the marine haul out rails and the sediments to the south of the pier contained levels of mercury, copper, lead, phthalates, polychlorinated biphenyls (PCB), and PAHs above the State of Washington, Sediment Quality Standards (SQS) and Minimum Cleanup Level (MCUL) criteria. These standards are found in the Sediment Management Standards Regulation (SMS), Chapter 173-204 WAC Although there is not a promulgated SQS or MCUL value for tributyltin (TBT), the sediment concentrations of this chemical were above the screening criteria of 15 ug/l in sediment porewater, which is used for the Puget Sound Dredged Material Management Program (DMMP),

Sediment sample locations and chemical exceedances are shown on Exhibit A. The primary chemicals of concern within the sediments are TBT, mercury, and PCBs.

Sample results show that the highest levels of contaminants are found within the marine railway area (SMU 1 and part of SMU 2 on Exhibit A). Elevated mercury was detected in all seven samples within the marine railway, with the highest detected level of 3.17 mg/kg, compared to the SQS of 0.41 and the MCUL of 0.59 mg/kg. PCBs were detected in three samples within the marine railway area, ranging from 14.3 mg/kg to 99.4 mg/kg, compared to the SQS of 12 mg/kg and the MCUL of 65 mg/kg. (PCB results are expressed as organic carbon normalized concentrations for comparison to the the SQS). Other chemicals detected at elevated levels in the marine railway area included one sample with lead of 870 mg/kg, compared to the SQS of 450 mg/kg; and one sample containing 516 mg/kg copper, compared to the SQS of 390 mg/kg. A few exceedances of the SQS for the semivolatile organic compounds bis (2-ethylhexyl) phthalate, butylbenzylphthalate, dimethylphthalate, benzofluoranthenes and chrysene were detected in some of the samples within the marine railway, at some of the same sample locations with the higher exceedances for the other chemicals of concern TBT was also detected in all samples within the marine railway, ranging from 140 micrograms per kilogram (ug/kg) to 3200

ug/kg, measured as the TBT ion in bulk sediment. Results from sediment core samples indicate the elevated contaminants are not found below approximately 1.5 feet deep.

Part of the marine railway area is above the high tide line. Because this area could affect the quality of the intertidal sediments through erosion, it was determined by the City and Ecology for this project that the upper railway area would be managed in conjunction with the sediments. Four soil borings in this area contained elevated levels of metals in the surface soils (highest concentrations: 7300 mg/kg lead, 1.2 mg/kg mercury, 2030 mg/kg copper, 2.1 mg/kg cadmium, 442 mg/kg zinc). One sample from this area contained cPAH in surface soils above the MTCA Method A cleanup level for unrestricted soils. Soils in this area are slated to be removed as a part of the cleanup action described in the CAP. There is an area on the embankment just south of the pier where it appeared that metallic debris and refuse from the boat shop had been deposited. This material was tested and found to contain elevated copper, lead, mercury, and zinc (boring location AG-6). The sediment removal project will include removal of this debris and associated soils that could cause sediment contamination to the harbor through erosion.

In general, sediments south of the pier (SMU 3 on Exhibit A) were significantly less contaminated than the sediments within the marine railway, with only three of ten samples containing mercury at levels between 0.47 mg/kg and 0.53 mg/kg(compared to the SQS of 0.41 mg/kg). Three samples within this area contained TBT (SG-5 with 0.13 ug/l porewater/58 ug/kg bulk sediment; SG-11 with 0.032 ug/l in porewater and 280 ug/kg in bulk sediment, and AS-15 with 270 ug/kg bulk sediment). This area is slated to be capped with 12 to 18 inches of clean sand, overlain by 6 to 12 inches of clean gravel. Within this capping area, a subarea of about 600 square feet will be dredged prior to capping to remove a localized area represented by samples SG-4 and AS-4, where TBT concentrations of 2047 ug/kg in bulk sediment and 0.20 ug/l porewater were detected.

Samples in the vicinity of the floating dock, waterward of the edge of the marine railway and in the deeper water area of the site (SMU 2 on Exhibit A), were contaminated only with TBT, with the highest levels found of 620 ug/kg bulk sediment at SG-2 and 0.19 ug/l in porewater at SG-17. Confirmation sampling at the edge of the dredge area in the vicinity of SG017 is required as

a part of the CAP, to ensure that cleanup standards will be met beyond this location that contained TBT above the cleanup standard. The CAP presents the selected cleanup action and confirmational monitoring requirements for site sediments.

VI ECOLOGY DETERMINATIONS

A. Because it owns the property where the release occurred, the City of Gig Harbor is an "owner or operator" as defined in RCW 70.105D.020(12) of a "facility" as defined in RCW 70.105D.020(4).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(20) and RCW 70.105D.020(7), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to the City of Gig Harbor dated April 11, 2008, pursuant to RCW 70.105D.040, -.020(16) and WAC 173-340-500. By letter dated April 21, 2008, the City voluntarily waived its rights to notice and comment and accepted Ecology's determination that the City is a PLP under RCW 70.105D.040.

D. Based on sampling performed and independent remedial actions taken by the City and its consultants, and documented to Ecology in a series of Technical Memoranda and supporting materials, Ecology has determined that the investigations and independent remedial actions taken to address the following listed areas of the site are sufficient to meet the substantive requirements contained in the Model Toxics Control Act and its implementing regulations, Chapter 70.105D RCW and chapter 173-340 WAC.

1. Underground Heating Oil Storage Tank Area
2. Above Ground Heating Oil Storage Area
3. Soils under covered carport area of former "Pandora's" building (AG-8 area)
4. Fruit Tree and Yard Area
5. Lower Terrace Area
6. Former Gravel operation crane area.
7. Site Groundwater

E. Ecology has determined that additional remedial actions described in the CAP are necessary at the site to address remaining contamination on the site uplands and in the site sediments. To address these contaminants, a CAP was prepared and is included in this Order as Exhibit B. The CAP includes cleanup levels and remedial actions planned to address remaining upland contaminants in soils at the "AHA-1" and "AG-9" areas, and to address sediment contamination. Alternatives for sediment remediation were developed and presented to Ecology in Technical Memorandum No. 2, Evaluation of Sediment Cleanup Alternatives, January, 2006; Revised Technical Memorandum No. 2, Sediment Cleanup Study Report And Analysis Of Brownfields Cleanup Alternatives, February, 2007; and in Revised Dredging/Capping Alternative B, March 2007. Ecology has approved of the preferred cleanup alternative presented in the March, 2007 Revised Alternative B.

F. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that the City take the following remedial actions at the Site and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. Previous site investigations and remedial actions: Ecology hereby incorporates into this Order the previous remedial actions described in Section V. Reimbursement for specific project tasks under a grant agreement with Ecology is contingent upon the determination by Ecology's Toxic Cleanup Program that the work performed complies with applicable standards and is consistent with the remedial action required under this Order.

B. Implement Cleanup Action Plan. The City shall implement the cleanup actions as selected in the CAP (Exhibit B). The CAP in Exhibit B is an integral and enforceable part of this Order.

Schedule: The CAP construction elements shall be completed by November 10, 2008 unless agreed to in writing prior.

C. Deliverables for Cleanup Activities: The City shall submit the documents shown in Table 1 below for Ecology review and approval, according to the specified schedules. The City will submit final documents to Ecology within 15 calendar days of receiving Ecology's written comments on draft documents.

Table 1 – Submittal Schedule

Submittal	Schedule
1) Water Quality Monitoring, Sediment, and Soils Sampling Plan[1]	Draft – Thirty (30) calendar days prior to beginning any work at the Site. Ecology Written Comments – Fifteen (15) days prior to beginning any work at the Site Final – Prior to beginning any work at the Site
2) Institutional Control Plan[1]	Draft – Forty Five (45) calendar days from the effective date of the AO.
3) Long-Term Monitoring Plan[1]	Draft – Forty Five (45) calendar days from the effective date of the AO.
4) Project Completion Report	Within 60 days of completion of sediment cleanup activities.

[1] Contents of water quality and sediment monitoring plan, institutional control plan, and long-term monitoring plan are specified in the CAP.

D. Contractor Submittals: Project plans and specifications require the contractor to submit various plans to the City within 10 days of notice to proceed. The City will provide the draft and final plans to Ecology within one working day of the City receiving the plans from the contractor. Ecology will review and consult with the City about the contents of these plans to ensure that construction practices are in compliance with MTCA, SMS, and project permits. The submittals include:

- Worker Health and Safety Plan
- Contractor Quality Control Plan
- Contractor Demolition Work Plan
- Contractor Dredging and Excavation Work Plan

- Cap Source Material Testing Results
- Contractor Offshore Material Placement Work Plan
- Contractor Environmental Protection Plan

E. Data Submittals: Submit results of all environmental sampling data generated for the investigation and cleanup of this site to Ecology's Environmental Information Management System, in accordance with Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and Subappendix E of the Sediment Sampling and Analysis Plan Appendix, Revised February 2008 ("Sediment Related EIM Data Entry Business Rules").

Schedule: Within 60 days of the completion of the cleanup activities.

F. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this Section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

RCW 70.105D.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

The City shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order, beginning April 1, 2008. These costs do not include Ecology costs billed to and paid by the City under the Voluntary Cleanup Program prior to March 31, 2008. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2) The City shall pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly

Pursuant to RCW 70.105D.055, Ecology has authority to recover unreimbursed remedial action costs by filing a lien against real property subject to the remedial actions.

C. Implementation of Remedial Action

If Ecology determines that the City has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to the City, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of the City's failure to comply with its obligations under this Order, the City shall reimburse Ecology for the costs of doing such work in accordance with Section VIII. B. (Remedial Action Costs), provided that the City is not obligated under this Section to

reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, the City shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

Joyce Mercuri
Toxics Cleanup Program
Southwest Regional
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The project coordinators for the City are:

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Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and the City, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Decree.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW. All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

The City has notified Ecology that Anchor Environmental LLC is the engineer for implementation of the this Order and that Anchor will notify Ecology in writing of the identity of the selected contractor(s) for implementation of the cleanup action defined in the CAP.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that the City either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing the City's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by the City. The City shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by the City where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by the City unless an emergency prevents such notice. All persons who access the Site pursuant to this Section shall comply with any applicable Health and Safety Plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, the City shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII. (Work to be Performed),

Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), Subappendix E of the Sediment Sampling and Analysis Plan Appendix, Revised February 2008 ("Sediment Related EIM Data Entry Business Rules"), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, the City shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by the City pursuant to implementation of this Order. The City shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow the City and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII. F. (Access), Ecology shall notify the City prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

The City Received a U.S. Environmental Protection Agency Brownfields grant for the site in 2007, and conducted a public participation process as a part of the requirements under that Grant. A fact sheet was issued and a public meeting was held on May 23, 2007. A Public Participation Plan has been developed for the activities under this Agreed Order by Ecology and is included in this Order as Exhibit D.

Ecology shall maintain the responsibility for public participation at the Site. However, the City shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify the City prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by the City that do not receive prior Ecology approval, the City shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Peninsula Branch Library,
4424 Point Fosdick Dr. NW
Gig Harbor, WA 98335, (253) 851-3793.

b. Ecology's Southwest Regional Office
P. O. Box 47775
Olympia, WA 98506

(Street Address, 300 Desmond Drive, Lacey, WA 98503)
(360) 407-6365

I. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, the City shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, the City shall make all records available to Ecology and allow access for review within a reasonable time.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII. B. (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology's project coordinator's written decision or the itemized billing statement, the City has fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. The City may then request regional management review of the decision. This request shall be submitted in writing to the Southwest Region Toxics Cleanup Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of the City's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2 The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on the City to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of the City including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by the City;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.M (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of the City.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give the City written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.L (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII. M. (Endangerment).

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII. N (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and the City. The City shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII. J (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct the City to cease such activities for such period of time as it deems necessary to abate the danger. The City shall immediately comply with such direction

In the event the City determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, the City may cease such activities. The City shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction the City shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with the City's cessation of activities, it may direct the City to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII. M (Endangerment), the City's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII. K(Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against the City to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against the City regarding remedial actions required by this Order, provided the City complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

The City reserves all of its rights against all parties that are not signatories to this Order.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by the City without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to the City's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, the City shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, the City shall notify Ecology of said transfer. Upon transfer of any

interest, the City shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by the City pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. The City has obtained all federal, state and local permits required to conduct the cleanup action.

2. Pursuant to RCW 70.105D.090(1), the City is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, the City obtained all federal, state, and local permits required to conduct the cleanup action. All permits are available for review in the project files at Ecology's Southwest Regional Office records center and at the City of Gig Harbor, Engineering division. The specific permits obtained are:

- City of Gig Harbor Shoreline Management Substantial Development Permit
- Washington Department of Fish and Wildlife Hydraulic Project Approval
- ~~U.S. Army Corps of Engineers Section 10, 404 dredge and fill permit~~
- State of Washington, Department of Ecology, Section 10, 401 Water Quality Certification
- City of Gig Harbor Land Clearing and Grading Permit

The City has also conducted State Environmental Policy Act Review for the project and issued a Mitigated Determination of Nonsignificance August 20, 2007.

The City has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or the City determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination Ecology shall determine whether Ecology or the City shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the City shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by the City and on how the City must meet those requirements. Ecology shall inform the City in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. The City shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and the City shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Land Use Restrictions

Under Section VII of this Agreed Order the City shall submit an institutional controls plan to Ecology. The institutional controls plan that shall include land use restrictions, maintenance, and notification provisions to provide for perpetual protection all areas where contaminants are left in place beneath soil or sediment caps, in accordance with WAC 173-340-440(8)(b). A sample of a Uniform Environmental Covenant is included as Exhibit E.

R. Financial Assurances

Pursuant to WAC 173-340-440(11), the City shall maintain sufficient and adequate financial assurance mechanisms to cover all costs associated with the operation and maintenance of the remedial action at the Site, including institutional controls, compliance monitoring, and corrective measures.

S. Periodic Review

As remedial action, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, the City shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). The first periodic review for this site shall be conducted in June, 2011. Ecology reserves the right to require further remedial action at the Site under appropriate circumstances.

T. Indemnification

The City agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of the City, its officers, employees, agents, or contractors in entering into and implementing this Order. However, the City shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

Should a court of competent jurisdiction determine that this Agreed Order is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the State of Washington and The City of Gig Harbor, its officers, employees and volunteers, the City's liability hereunder shall be only to the extent of the City's negligence. The provisions of this section shall survive the expiration or termination of this Agreed Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon the City's receipt of written notification from Ecology that the City has completed the remedial activity required by this Order, as amended by any modifications, and that the City has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70 105D 050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site

C. In the event the City refuses, without sufficient cause, to comply with any term of this Order, the City will be liable for:

a. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

b. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply

D. This Order is not appealable to the Washington Pollution Control Hearings Board This Order may be reviewed only as provided under RCW 70.105D 060.

Effective date of this Order: August 8, 2008

City of Gig Harbor

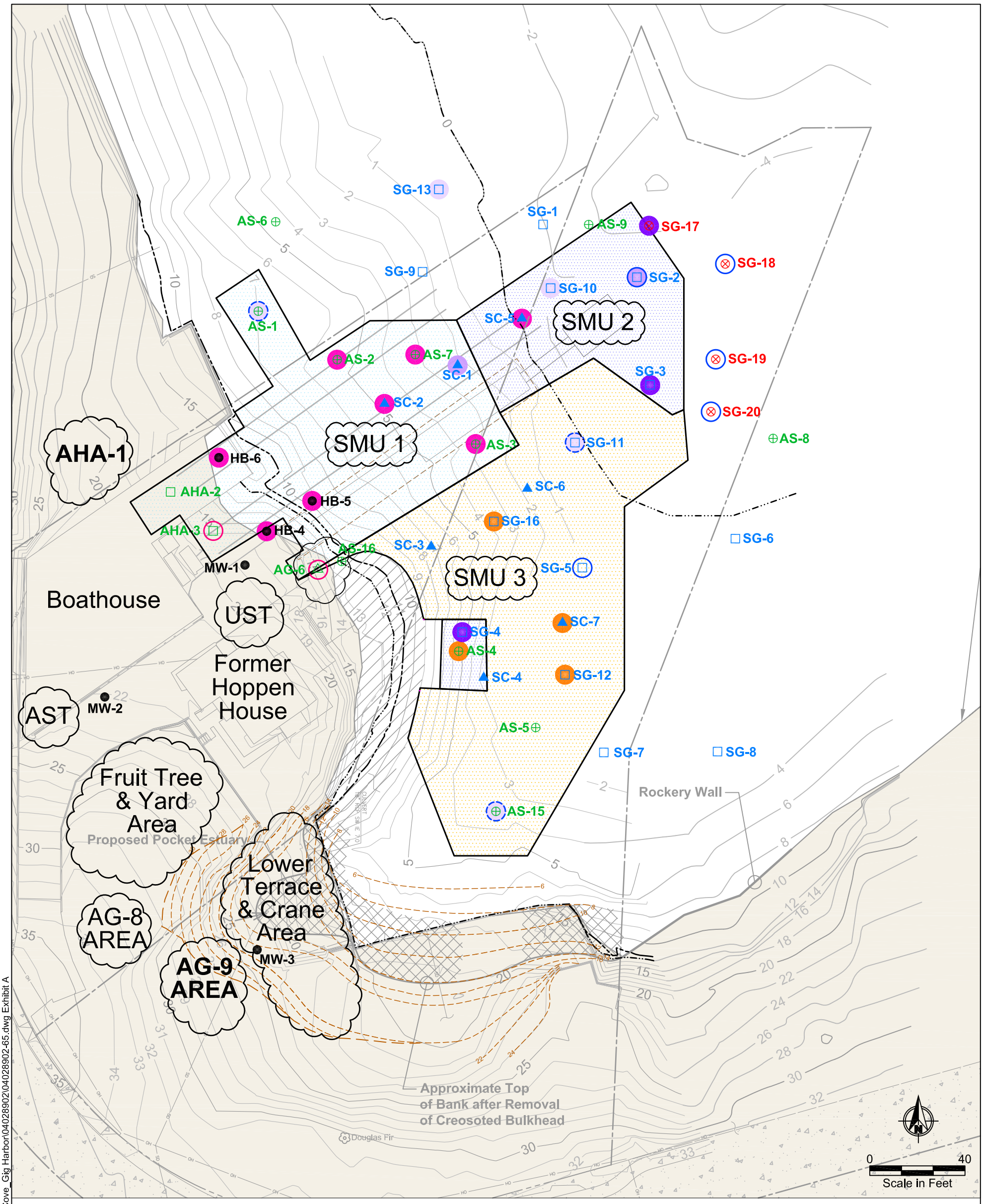
Chuck Hunter

Chuck Hunter
Mayor City of Gig Harbor
Gig Harbor, WA 98335
(253) 851-6170

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY

Rebecca Lawson

Rebecca Lawson
Section Manager
Toxics Cleanup Program
Southwest Regional Office
Department of Ecology
P O Box 47775
Olympia, WA 98504-7775
(360) 407-6260



Outfall
Parcel Boundary
Contour in Feet (Approximate)
Proposed Habitat Plantings
Existing Salt Marsh Vegetation
Bank Contours after Bulkhead Removal
Prescriptive Removal, Grading, and Capping
Monitoring Well Location

Historical Footprint of Pier

Anchor Sample Location and Number

2005
AS-1 Surface Sediment
AG-1 Geoprobe
AHA-1 Hand Auger

2006
SC-1 Subsurface Sediment Core
SG-7 Surface Sediment

2007
SG-17 Surface Sample

Exceeds Sediments Cleanup Screening Levels (CSL)
Exceeds Sediment Quality Standards (SQS)
Additional Points with Porewater TBT >0.15 µg/L
Additional Points with Bulk TBT >400 µg/kg
Additional Points with TOCN TBT >6 ppm
Additional Points with Porewater TBT >0.05
Additional Points with Bulk TBT >100 µg/kg

Dredge and Backfill to Original Grade
Dredge without Backfill to Original Grade
Sediment Isolation Cap

Mean High Water Line
Mean Higher High Water Line
Mean Lower Low Water Line

Jun 08, 2008 11:42am cdavidson K:\Jobs\040289-Harbor Cove_Gig Harbor\040289902\040289902-65.dwg Exhibit A

ANCHOR ENVIRONMENTAL, L.L.C.

Notes:
1. Base map prepared from survey provided by David Evans and Associates dated May 2006.
2. Horizontal Datum: SP NAD 83 WA South.
3. Vertical Datum: Mean Lower Low Water (MLLW).

Exhibit A
Site Map
Eddon Boatyard Sediment Remediation Project

EXHIBIT B

CLEANUP ACTION PLAN

EDDON BOATYARD SITE

Prepared for

City of Gig Harbor

3510 Grandview Street

Gig Harbor, Washington 98335

Prepared by

Anchor Environmental, L.L.C.

1423 Third Avenue, Suite 300

Seattle, Washington 98101

Issued by

Washington State Department of Ecology

Toxics Cleanup Program

Southwest Regional Office, Olympia

June 2008

Table of Contents

List of Tables

List of Figures

Declarative Statement

Consistent with the Model Toxics Control Act, Chapter 70.105D Revised Code of Washington, as implemented by the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 Washington Administrative Code, Ecology has determined that the selected cleanup actions are protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate, comply with cleanup standards, provide for compliance monitoring, use permanent solutions to the maximum extent practicable, provide for a reasonable restoration timeframe, and consider public concerns raised during public comment.

1 INTRODUCTION

This *Cleanup Action Plan* (CAP) is Exhibit B to the Agreed Order (AO) and describes the cleanup action proposed by the City of Gig Harbor (City) for the cleanup of upland and sediment contamination at the Eddon Boatyard Site (Site; Figure 1) in Gig Harbor, Washington. The City of Gig Harbor submitted an application under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) in late June 2005. Since then, the City has completed a number of cleanup and investigation activities in both the upland and sediment portions of the Site. These activities have been documented in a series of Technical Memoranda and associated Opinion Letters to assess whether they meet the specific substantive requirements of the Model Toxics Control Act (MTCA) and its implementing regulations (Chapter 70.105D Revised Code of Washington [RCW] and Chapter 173-340 Washington Administrative Code [WAC]). In 2006, the City received a brownfields grant from the U.S. Environmental Protection Agency to assist with cleanup of the Site. In addition, a portion of the costs of removal of the creosote-treated piling will be offset through support from Washington Department of Natural Resources (DNR) Creosote Removal Program.

In early 2007, the City prepared a Sediment Cleanup Study Report and Analysis of Brownfield Cleanup Alternatives (ABCAs) that presented an evaluation of Site cleanup alternatives for sediments and associated upland areas of and adjacent to the Site. Based on this document, the City and Ecology developed a recommended cleanup alternative that was the basis for an application for the required permits (Figure 2). At that time, the City initiated design activities. In November 2007, after completing design activities and preparing contract plans and specifications, the City requested sealed bid proposals for construction of cleanup activities. However, due to delays in getting the final permits, the City decided to delay the project and the bid opening. In March 2008, all necessary permits had been received, and the City issued a new invitation to bidders on March 29, 2008. A contractor has been selected and construction will commence in mid-summer, 2008.

The City and Ecology have decided to enter into an AO for the Site. This CAP was developed using information developed under the VCP process discussed above and has been prepared to satisfy the requirements of the MTCA, RCW 70.105D, administered by Ecology under the MTCA Cleanup Regulation, WAC 173-340.

1.1 Site Description

In 2004, the residents of the City approved the $3.5 million Proposition No. 1 Land Acquisition and Development General Obligation Bond (Proposition No. 1) to preserve a portion of the historic waterfront known as the Eddon Boathouse property (Figure 1). After completing a review of environmental conditions, the City purchased the Site in March 2005.

The Site consists of Pierce County tax parcels 022105-3074 and 02215-3050. It is about 3 acres in size, with roughly two-thirds of the land consisting of tidelands and subtidal lands. The Site is defined as the area where contaminants have come to be located from a release from boatyard activities. The Site includes the Eddon Boat Park property and portions of adjacent properties where contaminants originating from the boatyard activities are found.

Historically, the Site was a boatyard where boats were built from the 1940s until boatyard operations were terminated in 2003. The public recognizes that the Site has unique attributes, such as panoramic views of the harbor and proximity to eating establishments, recreation, and other amenities, which make this an important park acquisition that preserves the historic character of Gig Harbor. The property has not been used as a boatyard since 2005, and there are no plans for the future operation of a boatyard. Park development activities include any necessary environmental cleanup and remediation of the Site, while preserving the boathouse and related structures. The conceptual park design is presented in Figure 3.

1.2 Purpose and Scope

The main state law that governs the cleanup of contaminated sites is MTCA. MTCA regulations define the process for the investigation and cleanup of contaminated sites. When contaminated sediments are involved, the cleanup standards and other procedures are also regulated by the Sediment Management Standards (SMS), WAC 173-204. MTCA regulations specify criteria for the evaluation and conduct of a cleanup action. SMS regulations dictate the standards for sediment cleanup. Under both MTCA and SMS regulations, the cleanup must protect human health and the environment, meet state environmental standards and standards in other laws that apply, and provide for monitoring to confirm compliance with Site cleanup standards.

Though the objective of the VCP process has been to satisfy the requirements of the MTCA, RCW 70.105D, administered by Ecology under the MTCA Cleanup Regulation, WAC 173-340, the purpose of this CAP is to describe Ecology's proposed cleanup action for the Site. Consistent with the requirements of WAC 173-340-380, this document provides the following information:

- Summary of project background and current environmental conditions (Section 2)
- Cleanup requirements applicable to the Site, including cleanup standards and other federal, state, and local laws applicable to the cleanup action (Section 3)
- Summary description of the remedial alternatives evaluated in Technical Memorandum No. 2 (Section 4)
- Rationale for selection of the proposed cleanup alternative (Section 4)
- A description of the cleanup action, consistent with MTCA requirements; Section 5 includes a description of the types, levels, and amounts of hazardous substances that will remain on site as part of the cleanup and the measures that will be used to prevent migration and contact with those substances; also described are compliance monitoring and contingency actions, as well as institutional controls (Section 5)
- Description of the schedule for implementation of the cleanup action (Section 6)

The AO will be signed by the City and by Ecology. The City has completed permitting and design activities and has solicited bids to complete the construction. Construction is expected to begin in early summer 2008 and will take between 2 and 3 months to complete. Long-term monitoring activities will be initiated following completion of construction activities.

2 SITE BACKGROUND

This section summarizes background information relevant to the cleanup of the Site. The City has completed a number of cleanup and investigation activities in both the upland and sediment portions of the Site, much in response to Opinion Letters provided by Ecology that assess whether specific substantive requirements of the MTCA and its implementing regulations (RCW 70.105D and WAC 173-340) are likely going to be met. These activities have been documented in a series of Technical Memoranda (see Exhibit C to the AO).

These Technical Memoranda include:

- Technical Memorandum No. 1 – Confirmation Sampling for UST Removal and Isolated Soil Impacts. September 28, 2005.
- Technical Memorandum No. 2. – Evaluation of Sediment Cleanup Alternatives, January 2006.
- Technical Memorandum No. 2. Revised Technical Memorandum No. 2 – Sediment Cleanup Study Report and Analysis of Brownfields Cleanup Alternatives. February 2007.
- Technical Memorandum – Revised Dredging and Capping Alternative B. March 29, 2007.
- Technical Memorandum No. 3 – Work Plan for Proposed Investigation Activities. June 12, 2006.
- Technical Memorandum No. 4 – Completed Investigation Activities. June 12, 2006.
- Technical Memorandum No. 5 – Sediment Sampling and Analysis Plan – Additional Activities. July 18, 2006.
- Technical Memorandum No. 6 – Results of Additional Sediment Sampling. January 26, 2007.
- Technical Memorandum No. 7 – Upland Data Results. October 23, 2006.
- Technical Memorandum No. 8 – Groundwater Testing Results. February 26, 2008.
- Technical Memorandum No. 9 – Additional Surface Sediment Sampling Testing Results. August 15, 2007.
- Technical Memorandum No 10 – Terrestrial Ecosystem Evaluation. March 17, 2008.

Other documents referenced in the above Technical Memoranda include:

- Phase I Environmental Site Assessment (Saltbush 1999)

- Phase II Environmental Site Assessment (Krazan 2003)
- Sampling and Analysis Plan (Anchor 2004)
- Data Assessment and Conceptual Cleanup Plan (Anchor 2005)

2.1 Site History

The Site is located along the Gig Harbor shoreline (Figure 1) and consists of two tax parcels with both upland and aquatic lands. The area is a working waterfront, and the Site is adjacent to a number of marinas. The Site is described in detail in Phase I and Phase II Environmental Site Assessments conducted by Saltbush Environmental Services, Inc. (1999) and Krazan and Associates, Inc. (2003), respectively.

Four buildings historically existed on the Site, including the boat repair facility (boathouse and associated structures), a single family residence (former Hoppen house), a former antique shop (Pandora's Building), and a bird feed/gift shop (Wild Birds Unlimited Building). The boat repair facility has occupied the Site since the 1940s and was closed after the City purchased the property.

Today, the Site slopes from Harborview Drive down to the water and currently only includes two buildings. The shoreline consists of both relatively natural embankments and a creosote wood bulkhead. The two sets of haul-out rails, a pier, and a floating dock still remain.

The building, formerly in the middle of the Site and referred to in the project documents as Pandora's, was a concrete block structure with a covered carport that was present on the Site from the 1950s until it was demolished in early 2006. It was previously an antique shop and a City maintenance shop. The building formerly on the southernmost part of the Site, referred to in the project documents as "Wild Birds Unlimited" is believed to have originally been part of a gravel loading operation and was most recently used as a retail shop. There were several concrete retaining walls behind this building that are believed to have been associated with the gravel loading operation. There were also remnants of gravel loading crane assembly adjacent to a bulkhead at the south part of the Site.

The Pandora's building, the Wild Birds Unlimited building, and the concrete retaining walls were demolished in early 2006 (along with brush clearing activities). The single family residence is not currently occupied.

The boat repair facility is composed of historic structures, all of which will remain in place, though the pier and marine railways will be demolished as part of the sediment cleanup (permits have been received for these activities). The pier and marine railway(s) will be re-constructed in the future, though the exact design and timing is undetermined. The future status of the former Hoppen house is still being evaluated.

2.2 Current Site Conditions

Both upland and sediment areas have been subject to multiple sampling and analysis investigations and are well characterized. Between 2005 and 2008, the City submitted several technical memoranda and other documents to Ecology summarizing sampling activities and interim remedial actions that have been taken at the Site (refer to Exhibit C to the AO). Ten areas of concern were identified by Ecology:

1. 500 gallon underground heating oil storage tank near the residence
2. 500 gallon aboveground heating oil storage tank near the boat shop
3. Elevated heavy oil petroleum hydrocarbons and elevated lead in surface soils underneath covered carport of former maintenance shop (Pandora's) building; this area was represented by soil boring AG-8
4. Fruit tree and yard area; Ecology expressed concern about potential for arsenic or lead contamination from the potential historic use of arsenical pesticides, or from the area-wide contamination resulting from aerial deposition from the former Asarco copper smelter in Tacoma
5. An area below the former Pandora's building where a discarded oil storage tank had been found during brush clearing, and later test pits unearthed three used oil filters; this area was known as the "Lower Terrace" area
6. Potential for oil contamination from the former gravel operation's crane area adjacent to the south bulkhead
7. An area on the adjacent property to the north, just outside of the north side door to the boat shed containing elevated carcinogenic polyaromatic hydrocarbons (cPAHs); this area was represented by soil boring AHA-1

8. An area at 8 to 10 feet below ground surface on the central/east part of the Site containing elevated cPAH; this area was represented by soil boring AG-9
9. Site Groundwater.
10. Contaminated sediments throughout the tidelands of the property, with the highest levels of contaminants in the vicinity of the marine railways; some areas of contaminated uplands soils were also identified in areas that could present a source of contamination to sediments

The remainder of this section provides additional detail for each of these areas.

2.2.1 Underground Heating Oil Storage Tank

A 500 gallon underground heating oil storage tank (UST) next to the residence was removed in March 2006. Results were presented to Ecology in a letter of May 3, 2006, and in Technical Memorandum No. 4, June 12, 2006. Samples were obtained from the bottom and sidewalls of the final excavation (after approximately 3 feet of over excavation when initial samples contained hydrocarbons). Water seeping into the excavation was also sampled. No petroleum or polycyclic aromatic hydrocarbons (PAHs) were detected above the MTCA, Method A groundwater cleanup levels, or soil cleanup standards for unrestricted land use. Ecology issued an Opinion Letter through the VCP on June 29, 2006, stating that the UST removal and cleanup met the substantive requirements of MTCA for characterizing and addressing this release. The UST excavation included soils represented by boring AG-5, which contained elevated cPAH (0.417 milligam per kilogram [mg/kg] total toxicity equivalent concentration, compared to the MTCA soil cleanup standard of 0.1 mg/kg).

2.2.2 Aboveground Heating Oil Storage Tank

This 500 gallon aboveground storage tank (AST) was located at the southwest corner of the boat repair shop. It was removed sometime between 1999 and 2005. In August of 2006, a boring was installed close to the former AST to a depth of 6.5 feet. Samples were obtained from the boring at 4 to 5 feet and 5 to 6 feet below ground surface, and from a post-hole excavation directly beneath the former tank at 1 foot depth. Soils were tested for petroleum hydrocarbons and PAHs. All samples were below the MTCA, Method A groundwater cleanup levels, or soil cleanup standards for unrestricted land use. Results

of AST samples are found in Technical Memorandum No. 7. As the City did not request one, no Opinion Letter was provided on Technical Memorandum No. 7.

2.2.3 AG-8 Area

Soil boring results for boring AG-8, presented in the Data Assessment and Conceptual Cleanup Plan (Anchor 2005), showed that the area underneath the covered carport behind the Pandora's building contained elevated total petroleum hydrocarbon (TPH) and lead in the surface soils (2,535 mg/kg TPH and 586 mg/kg lead). The City excavated approximately 2 feet of soil from an approximately 250 square foot area. Samples from the sidewalls and bottom of the excavation confirmed that the hydrocarbon- and lead-containing soils were successfully removed. Ecology issued an Opinion Letter through the VCP on June 29, 2006, stating that AG-8 area remediation met the substantive requirements of MTCA for characterizing and addressing this release.

2.2.4 Fruit Tree and Yard Area

Ecology requested sampling in this area to identify arsenic or lead contamination from the potential historic use of arsenical pesticides, or from the area-wide contamination resulting from aerial deposition from the former Asarco copper smelter in Tacoma. In consultation with Ecology, the City obtained a 5-point composite sample of the orchard area in March 2006. The results were all below the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use. Ecology issued an Opinion Letter through the VCP on June 29, 2006, stating the sampling and results met the substantive requirements of MTCA for characterizing and addressing this area.

2.2.5 Lower Terrace Area

During brush clearing in the spring of 2006, the City discovered a discarded oil storage tank. The tank was pumped out, cleaned, and recycled. Ecology requested the City to dig test pits in this area to determine if other contaminants were visually present. In one test pit, three used oil filters were discovered. Three additional test pits were installed and samples obtained for volatile organics, PAH, TPH, and metals. All results were below the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use. In the Ecology June 29, 2006 Opinion Letter, Ecology stated that

sampling in this area met the substantive requirements of MTCA for characterizing and addressing this potential release area.

2.2.6 Crane Area

Ecology requested the City to evaluate the area where the former gravel loading crane was operated, on the terrace above the southernmost bulkhead. After the City cleared the brush from this area, Ecology inspected the area for signs of oil staining or other evidence of contamination that may have resulted from the operation of the crane. After a Site walk on March 20, 2006, Ecology informed the City that no further investigation would be required in this area.

2.2.7 Area AHA-1

Results of samples taken at boring AHA-1 were presented in the Data Assessment and Conceptual Cleanup Plan (Anchor 2005). Samples at the 1.5- to 3-foot depth contained a total toxicity equivalent cPAH concentration of 0.384 mg/kg, compared to the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use of 0.1 mg/kg. This area is just outside of the north side door to the boat shed. This area is slated to be excavated according to the cleanup action plan that is the subject of this AO.

2.2.8 Area AG-9

An initial boring in this area, presented in the Data Assessment and Conceptual Cleanup Plan (Anchor 2005) found cPAH above the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use at a depth of 8 to 10 feet at this location (0.378 mg/kg, based on the Toxicity Equivalent Methodology, compared to the MTCA soil cleanup standard of 0.1 mg/kg). In August of 2006, Anchor Environmental, L.L.C. (Anchor), installed a monitoring well at the same location of the AG-9 boring and also installed two soil borings close to the well (approximately 20 feet to the north and to the south of the well). Logs from all three borings show that there is a layer of "charred wood, black, greasy texture" at 8 to 10 feet below ground surface. Carcinogenic PAHs were detected above the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use (0.1 mg/kg) in this layer at all three borings (GP-2, 0.181 mg/kg; GP-3, 0.252 mg/kg; and MW-3, 0.109 mg/kg). At

boring GP-2, a sample obtained from beneath the layer of charred wood debris, at 13 feet below ground surface, did not exceed the cPAH standard and did not contain evidence of charred wood debris. Results of the August 2006 borings are found in Technical Memorandum No. 7. Groundwater conditions are discussed in the following section.

This approximately 2-foot-thick-fill layer with elevated PAH concentrations is about 8 to 10 feet below the existing grade. Though this area has been the subject to a number of investigations, the lateral extent of this fill layer is not fully defined. As part of the removal of the creosoted wooden bulkhead, as required by the Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA), the bank will be reconfigured. Based on the results of the disproportionality evaluation, portions of this soil layer will be removed as discussed further in Section 4.

2.2.9 Site Groundwater

Three groundwater monitoring wells were installed at the Site in August 2006. The locations of the wells were chosen in consultation with Ecology staff. Locations included MW-1, near the shoreline and also close to the former UST; MW-2, close to and downgradient of the former AST at the southeast side of the boathouse; and MW-3, located in the central area of the Site where a Site boring installed in 2005 had contained elevated levels of cPAH in soils at 8 to 10 feet below ground surface. Details about well installation and rationale for well locations are found in Technical Memorandum No. 7.

Groundwater samples were obtained on August 4, 2006; February 20, 2007; and May 24, 2007. Sample results are summarized in Technical Memorandum No. 8. In MW-2, arsenic was present at levels from 5.9 to 6.8 micrograms per liter (μg/L) (dissolved), slightly above the MTCA, Method A criteria for arsenic in groundwater of 5 micrograms per liter (which is based on background concentrations of arsenic in groundwater). MW-1, closer to the harbor, contained low levels of detectable arsenic, below the MTCA, Method A criteria for groundwater, and also below the Marine Chronic Ambient Water Quality Criteria for protection of marine life of 36 micrograms per liter. In MW-3, where cPAH were identified in soils at the 8 to 10 foot depth, no PAHs were detected above the Ambient Surface Water Quality Criteria for protection of aquatic life (set forth under Section 304 of the Clean Water Act) or for protection of human health from consumption

of organisms (set forth under the National Toxics Rule, 40 Code of Federal Regulations [CFR] 131).

2.2.10 Terrestrial Ecological Evaluation

A Terrestrial Ecological Evaluation (TEE) was prepared for the project in March 2008 (Technical Memorandum No. 10). A simplified TEE was appropriate for this Site based on the criteria in WAC 173-340-7490 through 7493. The simplified TEE compared Site data to the screening levels provided in Table 749-2 of the MTCA. One sample in surface soil exceeded the screening level for copper, and one surface sample exceeded the screening level for chromium. Ecology concurs with the conclusions of the simplified TEE report that these individual exceedances do not represent overall Site conditions and that Site grading that occurred in preparation for park development has very likely diminished the concentrations at the two individual locations significantly.

2.2.11 Sediments

Current surface and subsurface sediment chemistry concentrations have been well characterized and have elevated concentrations of metals, organics, and tributlytin (TBT; Figure 2). These investigations are presented in the following Technical Memoranda:

- Technical Memorandum No. 2. – Evaluation of Sediment Cleanup Alternatives, January 2006.
- Technical Memorandum No. 2. Revised Technical Memorandum No. 2 – Sediment Cleanup Study Report and Analysis of Brownfields Cleanup Alternatives. February 2007.
- Technical Memorandum No. 3 – Work Plan for Proposed Investigation Activities. June 12, 2006.
- Technical Memorandum No. 5 – Sediment Sampling and Analysis Plan – Additional Activities. July 18, 2006.
- Technical Memorandum No. 6 – Results of Additional Sediment Sampling. January 2007.
- Technical Memorandum No. 9 – Additional Surface Sediment Sampling Testing Results. August 15, 2007.

Initial sediment sampling presented in the Data Assessment and Conceptual Cleanup Plan (Anchor 2005) showed that the sediments in the vicinity of the marine haul-out rails and the sediments to the south of the pier contained levels of mercury, copper, lead, phthalates, polychlorinated biphenyls (PCBs), and PAHs above the State of Washington, Sediment Quality Standards (SQS) and Minimum Cleanup Level (MCUL) criteria. These standards are found in the SMS, WAC 173-204. Although there is not a promulgated SQS or MCUL value for TBT, the sediment concentrations of this chemical were above the screening criteria of 0.15 micrograms per liter (ug/l) in sediment porewater, which is used for the Puget Sound Dredged Material Management Program (DMMP). Additional sediment samples were obtained in October of 2006 and in July of 2007.

Sediment sample results are found in the Revised Technical Memorandum No. 2 and in Technical Memorandum No. 9. The primary chemicals of concern (COCs) within the sediments are TBT, mercury, and PCBs (Figure 2). Sample results show that the highest levels of contaminants are found within the marine railway area (SMU 1 and part of SMU 2 on Figure 2). Elevated mercury was detected in all seven samples within the marine railway, with the highest detected level of 3.17 mg/kg, compared to the SQS of 0.41 mg/kg and the MCUL of 0.59 mg/kg. PCBs were detected in three samples within the marine railway area, ranging from 14.3 mg/kg to 99.4 mg/kg, compared to the SQS of 12 mg/kg and the MCUL of 65 mg/kg. (PCB results are expressed as organic carbon normalized concentrations for comparison to the SQS.) Other chemicals detected at elevated levels in the marine railway area included one sample with lead of 870 mg/kg, compared to the SQS of 450 mg/kg; and one sample containing 516 mg/kg copper, compared to the SQS of 390 mg/kg. A few exceedances of the SQS for the semivolatile organic compounds bis (2-ethylhexyl) phthalate, butylbenzylphthalate, dimethylphthalate, benzoflouranthenes, and chrysene were detected in some of the samples within the marine railway, at some of the same sample locations with the higher exceedances for the other COCs. TBT was also detected in all samples within the marine railway, ranging from 140 to 3,200 micrograms per kilogram (ug/kg), measured as the TBT ion in bulk sediment. Results from sediment core samples indicate the elevated contaminants are not found below approximately 1.5 feet deep.

Part of the marine railway area is above the high tide line. Because this area could affect the quality of the intertidal sediments through erosion, it was determined by the City and Ecology for this project that the upper railway area would be managed in conjunction with the sediments. Four soil borings in this area contained elevated levels of metals in the surface soils (highest concentrations included 7,300 mg/kg lead, 1.2 mg/kg mercury, 2,030 mg/kg copper, 2.1 mg/kg cadmium, and 442 mg/kg zinc). One sample from this area contained cPAH in surface soils above the MTCA, Method A groundwater cleanup levels, and soil cleanup standards for unrestricted land use. Soils in this area are slated to be removed as a part of the sediment remediation project that is the subject of this AO.

There is an area on the embankment just south of the pier where it appeared that metallic debris and refuse from the boat shop had been deposited. This material was tested (AG-6) and found to contain elevated copper, lead, mercury, and zinc. The sediment removal project will include removal of this debris and associated soils that could cause sediment contamination to the harbor through erosion.

In general, sediments south of the pier (SMU 3 on Figure 2) were significantly less contaminated than the sediments within the marine railway, with only three of 10 samples containing mercury at levels between 0.47 mg/kg and 0.53 mg/kg(compared to the SQS of 0.41 mg/kg). Three samples within this area contained TBT (SG-5 with 0.13 ug/l in porewater/58 ug/kg in bulk sediment; SG-11 with 0.032 ug/l in porewater and 280 ug/kg in bulk sediment, and AS-15 with 270 ug/kg in bulk sediment). This area is slated to be capped with 12 to 18 inches of clean sand, overlain by 6 to 12 inches of clean gravel. Within this capping area, a subarea of about 600 square feet will be dredged prior to capping to remove a localized area represented by samples SG-4 and AS-4, where TBT concentrations of 2,047 ug/kg in bulk sediment and 0.20 ug/lporewater were detected.

Samples in the vicinity of the floating dock, waterward of the edge of the marine railway and the in deeper water area of the Site (SMU 2 on Figure 2), were contaminated only with TBT, with the highest levels found of 620 ug/kg in bulk sediment at SG-2 0.19 ug/l in porewater at SG-17.

These data have been evaluated against the Washington State SMS (WAC 173-204) chemical criteria (and various TBT benchmarks as discussed in the sediments technical memoranda) to identify the area and volume of sediments that exceed various criteria. Figure 2 presents a summary of sediment quality against SMS chemical criteria and various benchmarks for TBT. With the discontinuation of historical activities that have resulted in elevated sediment chemical concentrations, it is important to note that source control has been demonstrated. Confirmation sampling at the edge of the dredge area in the vicinity of SG-17 is required as a part of this CAP, to ensure that cleanup standards will be met beyond this location that contained TBT above the cleanup standard.

3 CLEANUP REQUIREMENTS

This section describes the cleanup requirements that must be met by the cleanup of the Site. Consistent with MTCA and SMS requirements, this section addresses three types of requirements:

- Cleanup Levels – A "cleanup level" is the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions (WAC 173-340-200)
- Point of Compliance – The "Point of Compliance" defines the point or points on a site where cleanup levels must be met (WAC 173-340-200)
- Applicable Local, State, and Federal Laws – In addition to the requirements of the SMS and the MTCA, other laws apply to the cleanup; Section 3.3 discusses applicable laws and how they will be addressed during implementation of the cleanup action

3.1 Cleanup Levels

Cleanup standards applicable to sediments, soils, and groundwater are described below.

3.1.1 Sediment Cleanup Levels

The SMS, WAC 173-204, govern the identification and cleanup of contaminated sediment sites and establish two sets of numerical chemical criteria against which surface sediment concentrations are evaluated. The more conservative SQS provide a regulatory goal by identifying surface sediments that have no adverse effects on human health or biological resources. The MCUL (equivalent to the Cleanup Screening Level), represents the regulatory level that defines minor adverse effects. The SQS is Ecology's preferred cleanup goal, although Ecology may approve an alternate cleanup level within the range of the SQS and the MCUL if justified by a weighing of environmental benefits, technical feasibility, and cost. Chemical concentrations or confirmatory biological testing data may define compliance with the SQS and MCUL criteria.

The primary cleanup levels (long-term goal) for the Site sediments are defined as the SQS. There are no promulgated SMS criteria for TBT (ion), and there is no well-established relationship between the concentration of TBT (ion) in sediment and porewater to the potential for adverse effects to aquatic resources. Still, for the purposes of evaluating the protectiveness of various Site cleanup alternatives (recognizing that

Gig Harbor is a working harbor and the Site is adjacent to a number of marinas), there are a number of applicable benchmarks, or screening criteria, against which TBT concentrations in sediment and porewater can be evaluated (Figure 2). These are discussed in detail in Revised Technical Memorandum No. 2. Ecology and other sediment management agencies consider an interstitial porewater value of 0.05 ug/l to be equivalent to the "no adverse effects level" goal of the SQS (WAC 173-204-320). This approach is based on a 1996 Technical Information Memorandum that was put forth through the Sediment Management Annual Review Meeting review process in 1996 (Michelsen, et al. 1996). This Technical Information Memorandum also provided a screening guidance criterion for deep water disposal of sediments at dredged sediments disposal sites of 0.15 µg/l. The 0.15 µg/l concentration is considered by Ecology to be a "minor adverse effects" level equivalent to the MCUL. Ecology reviewed the levels of TBT at the Site in relationship to the various benchmarks presented in the Cleanup Study Report (Revised Technical Memorandum No. 2 – Sediment Cleanup Study Report and Analysis of Brownfields Cleanup Alternatives) and in relationship to the proposed cleanup presented in Revised Dredging and Capping Alternative B. Based on this review, Ecology has determined that the 0.15 µg/L porewater is an acceptable cleanup level for TBT at this Site. Sediment cleanup levels are summarized in Table 1.

3.1.2 Soil and Groundwater Cleanup Levels

Soil and groundwater cleanup levels consider reasonable maximum exposure expected under both current and future Site conditions. For the Site, soil cleanup levels have been set at the MTCA, Method A cleanup levels for unrestricted land use. Based on the information generated from the Site soils investigations, TPH (diesel and heavy oil), cPAH, and lead have been identified as the COCs at this Site. Cleanup standards for these contaminants are also presented in Table 1. Site investigations showed that groundwater is not a pathway of concern on this Site for human health risk or for the potential to affect the marine waters. Therefore, no groundwater cleanup standards have been set.

3.2 Point of Compliance

This section summarizes point of compliance for upland and sediment areas.

3.2.1 Soil

The soil cleanup standard consists of a concentration (cleanup level) and the point of compliance at any specified soil location. The point of compliance for soils is for the soils throughout the Site. Remedial investigations indicate that only two remaining areas are above the soil cleanup standard. These areas will be remediated and confirmation sampling at the edges of the excavations will be completed to confirm that the contaminants have been removed or isolated (see Section 5) and that cleanup standards are met.

3.2.2 Sediments

Consistent with the SMS regulations, sediment cleanup levels apply to the sediment bioactive zone (upper 10 cm of the sediment column). The cleanup levels do not directly apply to subsurface sediments, but the SMS require that the potential risks of the current and/or future exposure of deeper sediments be considered and be minimized through the implementation of the cleanup action. Areas where soils are excavated just above the high-water line (e.g., AG-6 area) will also need to meet sediment cleanup levels to address any potential for soil erosion to adjacent sediments.

3.3 Applicable Local, State, and Federal Laws

Cleanup actions must comply with applicable local, state, and federal laws. In certain cases, a permit is required. In other cases, the cleanup action must comply with the substantive requirements of the law but are exempt from the procedural requirements of the law (RCW 70.105D.090 and WAC 173-340-710). Prior the decision to perform the work under an AO, the City applied for and has received the following permits and approvals:

- Mitigated Determination of Non-significance
- City of Gig Harbor Shoreline Management Substantial Development – October 25, 2007
- HPA
- 401 Water Quality Certification
- 404/10 Permit U.S. Army Corps of Engineers (Corps) and Section 106 Concurrence
- Land Clearing and Grading Permit

4 DESCRIPTION OF AND BASIS FOR SELECTED REMEDIAL ALTERNATIVES

This section describes the cleanup alternatives considered for upland and sediment cleanup, and the rational for choosing the preferred alternative.

4.1 Upland Areas

As discussed in Section 2, only two upland areas require cleanup:

- Area AHA-1 – This area is just outside of the north side door to the boat shed. This area will be excavated to a depth of 3 feet over a small area of approximately 100 square feet. After confirmation samples confirm that cleanup levels have been met, the area will be backfilled to grade with clean soil. Because removal is a permanent alternative, no further evaluation is required.
- Area AG-9 – This approximately 2-foot-thick layer of fill containing charred wood, with elevated cPAH concentrations, is about 8 to 10 feet below the existing grade and overlain by clean soil. Though this area has been the subject to a number of investigations, the lateral extent of this fill layer has not been completely defined. However, groundwater in this area has been demonstrated to meet cleanup levels.

Removal of two wooden bulkheads to improve habitat at the park is an integral component of this cleanup action. WDFW incorporated the bulkhead removal and creation of new beach habitat as a requirement of the HPA. Once the bulkheads are removed, the land behind the bulkheads will be reconfigured to a gentle slope down to the beach and the new beach will be covered with a habitat gravel mix. This regrading requires excavation in the area of the lens of charred wood and could result in exposure of the material where it would intersect the new slope. This layer will be at an increasing distance below the surface as the distance from the former bulkheads increases (Figures 4 and 5). Groundwater monitoring has determined that the lens of soils with elevated cPAHs is not impacting groundwater or surface water quality.

For the purposes of evaluating alternatives for addressing the remnants of the charred wood layer that remains buried in the area requiring regrading for the new slope, the following section presents a disproportionate cost analysis.

4.1.1 MTCA Disproportionate Cost Analysis – Area AG-9

The MTCA analysis of disproportionate costs (WAC 173-340-360(2)(b) and 173-340-360(3)(e) is used to evaluate which cleanup alternatives, among those that otherwise meet threshold requirements, are permanent to the maximum extent practicable Seven criteria are used to evaluate and compare each cleanup action alternative in the disproportionate cost analysis as specified in WAC 173-340-360(3)(f):

- Protectiveness
- Permanence
- Costs
- Long-term effectiveness
- Short-term risk management
- Implementability
- Considerations of public concerns

The analysis compares the relative benefits of each alternative against those provided by the most permanent alternative. A majority of these benefits are environmentally based while others are related but non-environmental, such as "implementability."

The comparison of costs and benefits may be quantitative, but is often qualitative, or subjective. Costs are disproportionate to benefits if the incremental costs of the more permanent alternative exceed the incremental degree of benefits achieved by the other lower-cost alternative (WAC 173-340-360(e)(i)). Where two or more alternatives are equal in benefits, the department shall select the less costly alternative (WAC 173-340-360(e)(ii)(c)).

At this Site, quantitative data is available regarding the estimated amount of clean soil that would need to be removed to access the lens of soil with charred wood and elevated cPAHs (Figure 5 and Table 2). These data were used to help inform a qualitative analysis of the protectiveness, permanency, and long-term effectiveness of each alternative (Table 2). The MTCA regulation allows Ecology to use best professional judgment to assess benefits qualitatively and to use its discretion to favor or disfavor qualitative benefits (WAC 173-340-360(3)(e)(ii)(c)).

Table 2 presents four alternatives for addressing the charred wood layer near the regraded shoreline. The alternatives are shown graphically on Figure 5.

- Excavation Alternative 1 represents the project design grade for the beach regrading after bulkhead removal that is required for the HPA. The project design calls for removal of the bulkheads and shaping the land behind the bulkhead to a gradual slope (approximately 3:1 slope). The regraded area overlaps the location of the borings where the charred wood layer was identified, and it is possible that the lens will be intersected by the new slope. This alternative represents the "no-action" alternative because it does not include removal or capping of the lens that contains cPAHs.
- Excavation Alternative 2 involves overexcavating the slope to at least an additional 3 feet beyond that required for the design grade, and backfilling to design grade with clean soils. This will require removal of additional clean overburden as well as removal of part of the charred wood lens (if it is encountered). Backfilling with clean material on the slope will result in at least 3 feet of clean material between the layer containing cPAH and the land surface at the shoreline.
- Excavation Alternative 3 is similar to Alternative 2, with an additional 3 feet of overexcavation and backfill to design grade (for a total of 6 feet of clean cover material).
- Excavation Alternative 4 would involve excavation of a large amount of clean overburden soils in an effort to unearth and remove the cPAH-containing lens as far back as 60 feet from the shore and 15 feet below ground surface. This represents the most permanent alternative.

Alternative 2 and 3 provide similar levels of protectiveness, effectiveness, and permanence. Alternative 2 is less costly, and more easily implementable than Alternative 3. Both alternatives present similar short-term risks, which can be addressed through appropriate construction management practices. Alternative 4 does not provide significant additional environmental benefits over Alternative 2 or 3, and is significantly more costly and more difficult to implement.

Based on a review of the alternatives, costs, implementability, and environmental benefits, Ecology has determined that Alternative 2 is an acceptable alternative for

addressing area AG-9. Ecology has also agreed that the City may install test pits prior to implementing Alternative 2 to confirm that the layer of charred wood would remain at least 3 feet beneath the design grade, without the additional excavation required for Alternative 2. If the City confirms the extent of the lens through test pits, they may, in consultation with and approval from Ecology, elect to construct the project to design grade (Alternative 1) without further excavation.

4.2 Sediment Areas

The selection of the Revised Dredging and Capping Alternative B was based on an evaluation of cleanup action alternatives in terms of net environmental benefits, community acceptance, cost, engineering feasibility, and implementability. This evaluation is detailed in the following Technical Memoranda and summarized in Table 3.

- Technical Memorandum No. 2. – Evaluation of Sediment Cleanup Alternatives, January 2006.
- Technical Memorandum No. 2. Revised Technical Memorandum No. 2 – Sediment Cleanup Study Report and Analysis of Brownfields Cleanup Alternatives. February 2007.
- Technical Memorandum. Revised Dredging and Capping Alternative B. March 29, 2007.

5 DESCRIPTION OF THE PROPOSED CLEANUP ACTION

5.1 Sediment Remediation

The Eddon Boatyard Sediment Remediation Project includes areas of dredging and backfill, dredging without backfill, and capping. These have been identified on Figure 2 as Sediment Management Units (SMUs) 1, 2, and 3.

- SMU 1: Dredge and backfill – The area around the upper part of the marine haul-out railway and pier, above the approximately +2 feet mean lower low water tide level (+2 MLLW), will be dredged to a depth of 2 feet. This area will be backfilled with clean sand and covered with a 6-inch-thick layer of habitat gravel mix. The marine railways and pier will be removed to accomplish the dredging and will be replaced in a future phase of park development. This cleanup area includes excavation of upland soils above the high tide level within the boat shed building, and excavation of a discrete area of debris/soils within the embankment to the south of the dock (sample location AG-6). Performance sampling will be required to ensure the debris/metals contamination on the embankment near the pier has been sufficiently removed. Performance sampling is not required elsewhere within this area because sediment cores in this area confirmed that sediments below 18 inches deep meet the SQS.
- SMU 2: Dredge without backfill – This area is waterward of SMU in the vicinity of the outer edge of the marine haulout rails and pier, and includes the subtidal area under the gangway and floating dock. This area will be dredged to a depth of 2 feet. No backfill will be required in this area as it is not necessary to bring it back to existing grade to accommodate replacement of structures. Confirmation sampling will be required to confirm the bottom of the dredge area meets the sediment cleanup levels, and to confirm that the dredged area removes the full footprint of contaminated sediments.
- SMU 3: Sand cap – The area to the south of the pier will receive a 12-inch sand cap covered by a 6-inch habitat gravel mix layer. A subarea within this unit (as shown on Figure 2) will first be dredged to 2 feet deep, then backfilled to match the surrounding grade.

5.2 Upland Remediation

Upland soil cleanup includes the following:

- Soil within a small area of approximately 100 square feet at AHA-1 will be removed to a depth of 3 feet and disposed of off site. Confirmation samples will be obtained from the bottom and sidewalls of the excavation.
- The layer of charred wood that contains elevated cPAH in the area of the bulkhead removal/slope regrading (AG-9) will be addressed as described in Section 4.1.1. The new shoreline bank will receive a surface layer of 12 inches of habitat gravel mixture below the high tide level and will be hydroseeded above the high tide level.

5.3 Compliance Monitoring

Water Quality Certification – Order No. 5228 and Corps Public Notice No. NWS-2007 785-NO (Water Quality Certification) was issued on November 19, 2007, and addresses water quality and sediment monitoring activities during construction. The Water Quality Certification requires approval by Ecology of a water and sediment monitoring plan before construction begins. The Water, Soil, and Sediment Monitoring Plan (Monitoring Plan) required under this AO will serve to comply with the requirements of the Water Quality Certification and will also include additional monitoring elements needed to confirm the areas remediated under this CAP meet applicable cleanup standards. . As required by the Water Quality Certification and the AO (Table 1), Ecology's written approval of this Monitoring Plan is required prior to beginning the work. The Monitoring Plan will include:

- Water quality monitoring during construction
- "Z" surface (upper 10 centimeters) at newly dredged surfaces that are not slated to be capped (SMU 2 and at new beach area in bulkhead removal vicinity)
- Confirmation sampling at northeast edge of SMU 2
- Confirmation sampling at landward edge of debris removal area around AG-6
- Confirmation sampling for soil removal area at AHA-1

5.4 Institutional Controls

In conjunction with compliance monitoring, institutional controls will be applied to limit or prohibit activities that could interfere with the integrity of the cleanup action. Environmental covenants will be recorded for all sediment cap areas and for soils left at depth near AG-9. Institutional controls will include deed restrictions (limited to City

property), information in Parks maintenance and operations manuals, and signage that clearly identify aquatic cap areas to avoid/restrict future disturbance of the isolated sediments. Further, any activities associated with the future operation of a demonstration boatyard will be required to be in full compliance with the General National Pollutant Discharge Elimination System (NPDES) Boatyard permit. These elements will be presented in the Institutional Control Plan (see Table 1 of the AO).

5.5 Sediment Area Long-term Monitoring Plan

The elements discussed below will be presented in a Long-term Monitoring Plan (see Table 1 of the AO). The focus of long-term monitoring is focused on confirming that the cap integrity is maintained. The City will visually inspect the cap areas annually for 5 years during low tide conditions to determine whether the cap material has remained in place and has not been significantly disturbed. If the cap material is present, there will be no action and it will be assumed that the cap work is achieving performance standards. If fine-grained material is present, rather than the original cap material, additional sampling using hand-held digging equipment ("hand cores") will be conducted to determine if material is moving on top of and covering the cap or the cap material has eroded away from the original cap area. The condition of the cap will be documented (photographs) and summarized annually (the Long-term Monitoring Plan will provide a schedule of submittals) in a brief memorandum to Ecology. If significant disturbance is observed, any additional actions will be discussed with Ecology.

The Long-term Monitoring Plan will also identify two locations where the surface sediments (upper 10 centimeters) will be sampled during Year 3 and Year 5. Sediments at these two locations will be submitted for total PCBs, total mercury, total organic carbon, total solids, and TBT porewater. Following each of the two sampling events, the results will be provided to Ecology in the annual memoranda.

6 IMPLEMENTATION OF THE CLEANUP ACTION

All permits for both the upland and sediment cleanup elements (and rebuilding of the pier and marine railways) were received on March 20, 2008. The City has requested sealed bid proposals for construction of the first phase of the Eddon Boatyard Sediment Remediation Project. Contract documents included Contract Plans, Contract Provisions, Contract Specifications, and Addenda. Sealed bid proposals were received on April 30, 2008, and the contractor selection was completed in May 2008. The project Notice to Proceed is expected to be issued following Public Comment on the AO. Mobilization and construction preparations can begin immediately after the Notice to Proceed is issued and the contractor has provided all the required submittals. The Site cleanup actions described in this CAP shall be completed within 90 working days after the Notice to Proceed is issued. This phase of the project is scheduled to be completed by November 10, 2008. This constitutes a reasonable restoration timeframe as required under WAC 173-340-360.

The second phase of the park development project, which includes rebuilding the pier and marine rails on their historical footprints, and reinstalling the existing gangway and floating dock, will be performed in subsequent construction seasons.

7 REFERENCES

Anchor Environmental, L.L.C. (Anchor). 2004. Sampling and Analysis Plan. Prepared for City of Gig Harbor. December.

Anchor. 2005. Data Assessment and Conceptual Cleanup Plan, Eddon Boatyard Property. Prepared for the City of Gig Harbor. August.

Krazan and Associates, Inc. 2003. Geotechnical Engineering-Phase II Environmental Investigation. Proposed Harbor Cove Development, 3711 and 3805 Harborview Drive, Gig Harbor, Washington. Poulsbo, Washington.

Michelsen, Dr. Teresa (Washington Department of Ecology), Travis C. Shaw (U.S. Army Corps of Engineers [Corps]), and Stephanie Stirling (Corps) for the PSDDA/SMS agencies. 1996. Testing, Reporting, and Evaluation of TBT Data in PSDDA and SMS Programs. October.

Saltbush Environmental Services, Inc. 1999. Phase I Environmental Site Assessment. The Harborview Drive Project, Gig Harbor, Pierce County, Washington. Tacoma, Washington.

TABLES

Table 1
Soil and Sediment Cleanup Levels

Parameter	Matrix	Cleanup Level
Soils – MTCA, Method A, unrestricted land use		
TPH – diesel range organics	Soil	2,000 mg/kg
cPAH	Soil	0.1 mg/kg (Toxicity Equivalency Methodology)
Lead	Soil	250 mg/kg
Sediments		
SMS chemicals	Sediment	Sediment Quality Standards (Table 1, 173-204 WAC)
Tributyltin	Porewater	0.15 µg/L

Notes:
µg/L = micrograms per liter
cPAH = carcinogenic polyaromatic hydrocarbon
mg/kg = milligram per kilogram
SMS = Sediment Management Standards
TPH = total petroleum hydrocarbon

Table 2
Evaluation of Permanence Using MTCA Disproportionate Cost Analysis (WAC 173-340-360(2)(b)(i) and WAC 173-340-360(3)(f))

AG-9 AREA	Excavation Scenario 1 – "No Action"	Excavation Scenario 2 – 3-foot overexcavation	Excavation Scenario 3 – 6-foot overexcavation	Excavation Scenario 4 – 20-foot overexcavation
Description	Regrade slope after bulkhead removal according to Hydraulic Project Approval and Park design grade. This requires removal of 1,300 cubic yards of soil and regrading slope to approximately 3:1 slope.	Overexcavate beyond design grade and backfill to design grade with clean soils, such that the charred wood layer containing cPAH would be overlain by at least 3 feet of clean soils. Re-use clean overburden on site.	Overexcavate beyond design grade and backfill to design grade with clean soils, such that the charred wood layer containing cPAH would be overlain by at least 6 feet of clean soils. Re-use clean overburden on site.	Overexcavate beyond design grade and backfill to design grade with clean soils, such that the charred wood layer containing cPAH would be overlain by at least 15 feet of clean soils. Re-use clean overburden on site.
Additional soil volume required to be removed	Not applicable	800 cubic yards	1,200 cubic yards	2,500 cubic yards
Scenario Cost	$114,000	$150,000	$185,000	$276,000
Increased cost over no-action alternative	Not applicable	$36,000	$71,000	$162,000
Overall Protectiveness	Not reliably protective because of possible intersection of charred wood layer with new embankment slope, or only slightly beneath new slope. Higher on the slope, protectiveness increases because fill layer will be buried deeper beneath the final grade.	This alternative is protective because it will isolate the layer containing charred wood and cPAH to at least three feet below ground surface. Soils at this depth will not be accessible by park visitors. Institutional controls will be applied to prevent future exposure of the soils in the event of later design changes to the park, and to prevent park visitors from digging into the soil. This alternative will also be protective because groundwater samples from the fill lens indicate the cPAH do not leach to groundwater at levels that may pose a threat to adjacent surface waters.	This alternative is as protective as Alternative 2, because it will isolate the layer containing charred wood and cPAH to at least six feet below ground surface. Since any soils below the ground surface will not be accessible by park visitors, the additional three feet of clean soil cover will not provide additional protectiveness. This alternative is equally as protective as Alternative 2 because groundwater samples from the fill lens indicate the cPAH do not leach to groundwater at levels that may pose a threat to adjacent surface waters.	This alternative is as protective as Alternative 2 and 3, because it will isolate the layer containing charred wood and cPAH to well below ground surface. Since all soils below the ground surface will not be accessible by park visitors, the additional thickness of clean soil cover will not provide additional protectiveness. This alternative is equally as protective as the other alternatives because groundwater samples from the fill lens indicate the cPAH do not leach to groundwater at levels that may pose a threat to adjacent surface waters.
Permanence	Not permanent unless cPAH layer is well below the surface and is not intersected by new slope. Does not permanently remove hazardous substances from the environment.	With the application of institutional controls, this alternative will permanently reduce the mobility of the hazardous substances. This alternative will permanently remove a portion of the hazardous substances from the environment.	With the application of institutional controls, this alternative will permanently reduce the mobility of the hazardous substances. This alternative will permanently remove a greater portion of the hazardous substances from the environment, compared to Alternative 2.	This alternative would provide the most permanent remedy, and could include removal of the entire lens of charred material.
Long-term Effectiveness	Not reliably effective, unless cPAH layer is well below the surface and is not intersected by new slope.	This alternative is effective for the long-term because institutional controls will prevent future exposure of the cPAH layer. The gentle slope and cover with vegetation will prevent erosion through the cap.	This alternative is effective for the long-term because institutional controls will prevent future exposure of the cPAH layer. The gentle slope and cover with vegetation will prevent erosion through the cap.	This alternative is slightly more effective for the long term because any remaining cPAH-contaminated soils would be well below any level that may need to be disturbed for future park maintenance or development.
Short-term Risk Management	Short-term risk will be minimized by implementing construction practices to contain the lens and protect surrounding soils and workers from exposure.	Short-term risk will be minimized by implementing construction practices to contain the lens and protect surrounding soils and workers from exposure.	Short-term risk will be minimized by implementing construction practices to contain the lens and protect surrounding soils and workers from exposure. Overall project risks in the form of worker safety may increase with the need to excavate a larger volume of soils.	Short-term risk will be minimized by implementing construction practices to contain the lens and protect surrounding soils and workers from exposure. Overall project risks in the form of worker safety may increase with the need to excavate a larger volume of soils.
Implementability	Easily implementable with conventional construction equipment.	Somewhat increased complexity due to need to overexcavate from design grade and backfill to design grade with unconsolidated materials. If lens is encountered would also increase complexity for segregation of clean from contaminated soils and care with handling cPAH-contaminated fill layer. Slope stability not expected to be a problem due to gradual slope (3:1).	Increasing complexity as excavation is expanded further inland. This complexity is driven by removal of overlaying material to get at the lens, segregation of material, and backfilling to design elevations.	Greatly increased complexity as excavation is expanded further inland. This complexity is driven by removal of large amounts of overlaying material to get at the lens, segregation of material, and backfilling to design elevations.
Consideration of Public Concerns	Community concerns will be evaluated during the public comment period on the Cleanup Action Plan, and the selected cleanup alternative may be modified if needed to address community concerns.	Community concerns will be evaluated during the public comment period on the Cleanup Action Plan, and the selected cleanup alternative may be modified if needed to address community concerns.	Community concerns will be evaluated during the public comment period on the Cleanup Action Plan, and the selected cleanup alternative may be modified if needed to address community concerns.	Community concerns will be evaluated during the public comment period on the Cleanup Action Plan, and the selected cleanup alternative may be modified if needed to address community concerns.

Table 3
Summary of Comparison of Sediment Cleanup Alternatives

Comparative Criteria[1]	Cleanup Alternatives					
	No Action	**Capping**	**Dredging/Capping Alternative A**	**Dredging/Capping Alternative B (Technical Memorandum No. 2, February 2007)**	**Revised Dredging/Capping Alternative B (Technical Memorandum, March 29, 2007)**	**Full Dredging**
Overall Protectiveness of Human Health and Environment[2]	**Low:** No construction-related impacts, but does not reduce chemical concentrations in the biologically active zone or meet any SMS cleanup criteria in an acceptable time frame. ***(Score=1)***	**Moderate to High:** Relatively low impacts during construction, immediately reduces chemical concentrations in the biologically active zone, but does not remove any chemicals from the aquatic environment. Less effective in the long-term due to the potential of mixing with sediments at depth. ***(Score=4)***	**Moderate to High:** Localized impacts during dredging and highest SMS chemical concentrations removed. Immediately reduces chemical concentrations in the biologically active zone. All TBT benchmarks met through dredging and capping. ***(Score=4)***	**Moderate to High:** Localized impacts during dredging and highest SMS chemical concentrations removed (more extensive than Alternative A). Immediately reduces chemical concentrations in the biologically active zone. All TBT benchmarks met through dredging and capping. ***(Score=4)***	**Moderate to High:** Localized impacts during dredging and highest SMS chemical concentrations removed (more extensive than Alternative A). Immediately reduces chemical concentrations in the biologically active zone. All TBT benchmarks met through dredging and capping. ***(Score=4)***	**Moderate to High:** Widespread impacts during dredging; removes all sediments above the SMS and all sediments that exceed various TBT benchmarks. Residuals addressed through backfilling. Immediately reduces chemical concentrations in the biologically active zone. ***(Score=4)***
Attainment of Cleanup Standards	**Low:** Does not address sediments that exceed the SQS, CSL, or TBT benchmarks. (***Score=1)***	**Moderate:** Addresses all SQS and CSL exceedances through isolation (capping). ***(Score=3)***	**High:** Removes all sediments that exceed the CSL, except SC-5, and the highest TBT bulk sediment concentrations. Sediments that are above the CSL, SQS, and various TBT benchmarks are addressed through capping. ***(Score=5)***	**High:** Removes all sediments that exceed CSL and the highest TBT bulk sediment concentrations. Sediments that are above the SQS and various TBT benchmarks are addressed through capping. ***(Score=5)***	**High:** Removes all sediments that exceed CSL and the highest TBT bulk sediment concentrations. Sediments that are above the SQS and various TBT benchmarks are addressed through capping. ***(Score=5)***	**High:** Removes all sediments that exceed the SQS or CSL and removes all sediments above the TBT benchmarks. ***(Score=5)***
Short-term Effectiveness[3]	**Low:** No immediate improvement or impacts. ***(Score=1)***	**Moderate to High** Capping has less short-term impacts than dredging. Benthic community will recover quickly. ***(Score=4)***	**Moderate:** Dredging has significant short-term impacts (water quality impacts and destruction of benthic community) and potential for other manageable issues to arise (transport, rehandling, and residuals). Capping has less short-term impacts than dredging. Benthic community will recover quickly. ***(Score=3)***	**Moderate to Low:** Increased amount of dredging (relative to dredging/capping alternative A) has increased level of short-term impacts (water quality impacts and destruction of benthic community) and potential for other manageable issues to arise (transport, rehandling, and residuals). Capping has less short-term impacts than dredging. Benthic community will recover quickly. ***(Score=2)***	**Moderate to Low:** Increased amount of dredging (relative to dredging/capping alternative A) has increased level of short-term impacts (water quality impacts and destruction of benthic community) and potential for other manageable issues to arise (transport, rehandling, and residuals). Capping has less short-term impacts than dredging. Benthic community will recover quickly. ***(Score=2)***	**Low:** Site-wide dredging has significant short-term impacts (water quality impacts and destruction of benthic community) and potential for other manageable issues to arise (transport, rehandling, and residuals) - more so than any of the other alternatives considered. ***(Score=1)***
Long-term Effectiveness and Permanence	**Low:** No significant reduction in chemical concentrations expected over time. ***(Score=1)***	**Moderate:** Capping establishes a clean Biologically Active Zone (BAZ). The cap will be designed to include a BAZ, an isolation zone, and a mixing zone. Monitoring will be required to confirm that concentrations do not approach SQS or various benchmarks. ***(Score=3)***	**Moderate to High:** Removal of the highest concentrations minimizes potential source areas and potential for recontamination. Capping establishes a clean Biologically Active Zone (BAZ). The cap will be designed to include a BAZ, an isolation zone, and a mixing zone. Monitoring will be required to confirm that concentrations do not approach SQS or various benchmarks over time. ***(Score=4)***	**Moderate to High:** Removal of the highest concentrations minimizes potential source areas and potential for recontamination. Capping establishes a clean Biologically Active Zone (BAZ). The cap will be designed to include a BAZ, an isolation zone, and a mixing zone. Monitoring will be required to confirm that concentrations do not approach SQS or various benchmarks over time. ***(Score=4)***	**Moderate to High:** Removal of the highest concentrations minimizes potential source areas and potential for recontamination. Capping establishes a clean Biologically Active Zone (BAZ). The cap will be designed to include a BAZ, an isolation zone, and a mixing zone. Monitoring will be required to confirm that concentrations do not approach SQS or various benchmarks over time. ***(Score=4)***	**High:** Removal of the highest concentrations minimizes potential source areas. ***(Score=5)***
Ability to be Implemented	**High:** No action required. ***(Score=5)***	**High** All alternatives can be implemented. Each alternative requires the contractor to consider access and equipment for shoreline areas, intertidal areas, and deeper water areas. ***(Score=5)***				
Addresses Community Concerns	**Low:** Does not meet the public's expectations that the Site will be cleaned up to support park elements. ***(Score=1)***	**Moderate to Low:** Meets the public's expectations that the Site will be cleaned up but the changes in elevation are inconsistent with the expectation that the rails will be functional (use of non-profit demonstration boatyard). ***(Score=2)***	**Moderate to High:** Meets the public's expectations that the Site will be cleaned up and that the rails will be functional (to support non-profit demonstration boatyard). Removal of material via truck (use of City streets) may be an issue. Float area use will be limited by lack of water depth. Construction will need to consider public concerns (noise, lights). ***(Score=4)***	**High:** Meets the public's expectations that the Site will be cleaned up and that the rails will be functional (to support non-profit demonstration boatyard). Removal of material via truck (use of City streets) may be an issue. Additional off-site offloading area will also need to be established. Float area use will meet water depth needs. Construction will need to consider public concerns (noise, lights). ***(Score=5)***	**High:** Meets the public's expectations that the Site will be cleaned up and that the rails will be functional (to support non-profit demonstration boatyard). Removal of material via truck (use of City streets) may be an issue. Additional off-site offloading area will also need to be established. Float area use will meet water depth needs. Construction will need to consider public concerns (noise, lights). ***(Score=5)***	**Moderate:** Meets the public's expectations that the Site will be cleaned up and that the rails will be functional (to support the non-profit demonstration boatyard). Removal of material via truck (use of City streets) may be an issue. Additional off-site offloading area will also need to be established. Float area use limitations due to water depths will be similar to today (unless area is not backfilled). Construction will need to consider public concerns (noise, lights). ***(Score=3)***
Cost[4]	**Nominal** ***(Score=5)***	**$1,470,000** ***(Score=4)***	**$1,700,000** ***(Score=3)***	**$1,650,000** ***(Score=2)***	**$1,600,000** ***(Score=4)***	**$2,390,000** ***(Score=1)***
Overall Score[5]	**15**	**25**	**28**	**29**	**29**	**24**
Rank	**5**	**3**	**2**	**1**	**1**	**4**

Notes:

1 = Criteria are from Ecology's Sediment Management Standards for Cleanup Study Report (WAC 173-204-560 and -570).

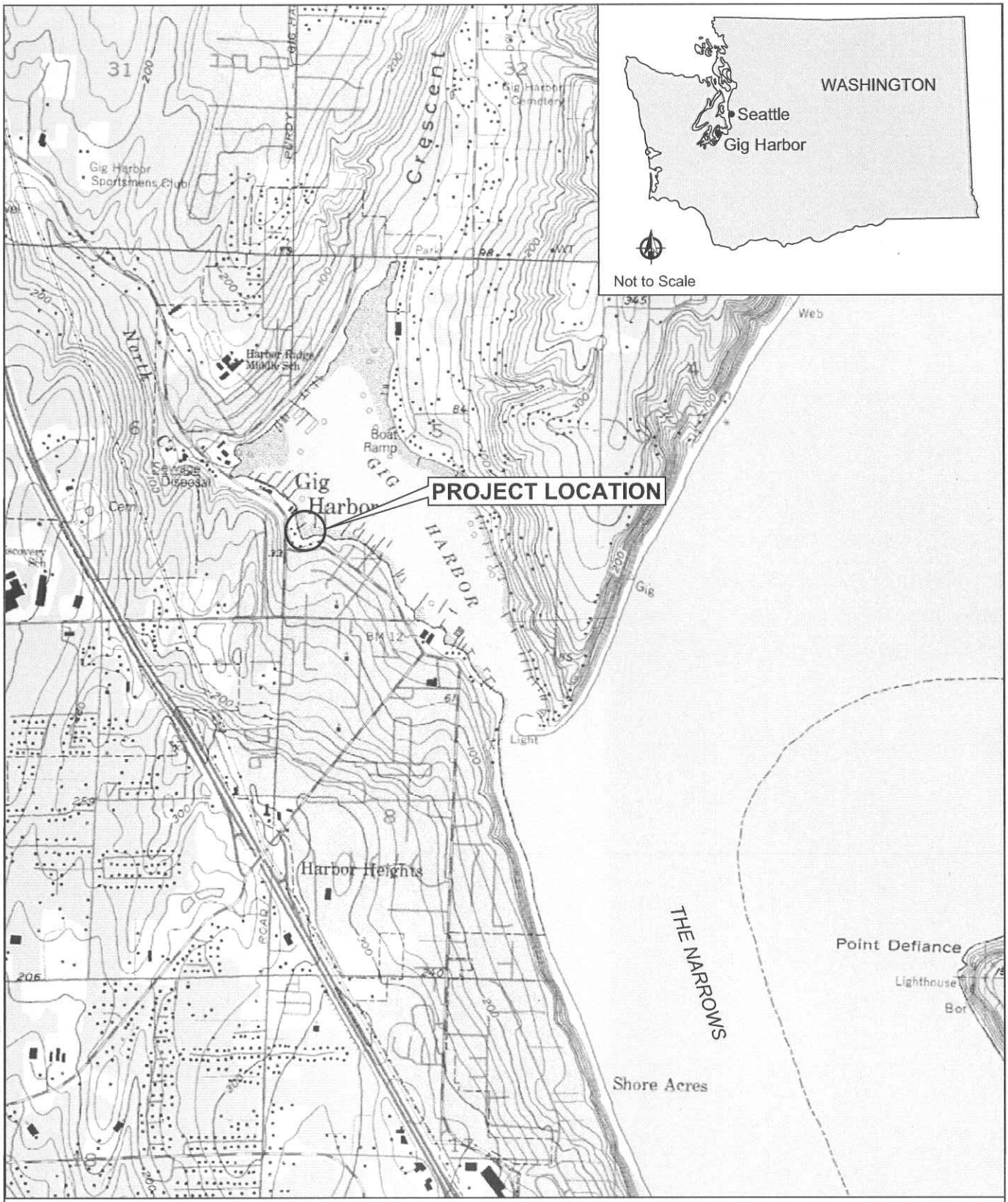
2 = TBT bench marks are discussed in Section 5.3 of Technical Memorandum No. 2.

3 = Considers environmental protectiveness during construction and implementation.

4 = Includes placeholder $500,000 plus 8.8% sales tax for pier and marine railway replacement. All costs are estimated and not based on discussions with or bids from contractors.

5 = Scores based on low=1, moderate to low=2, moderate=3, moderate to high=4, and high=5. Costs were ranked where the lowest cost was equal to 5 and highest was equal to 1 (scaled). Total score = 35.

FIGURES



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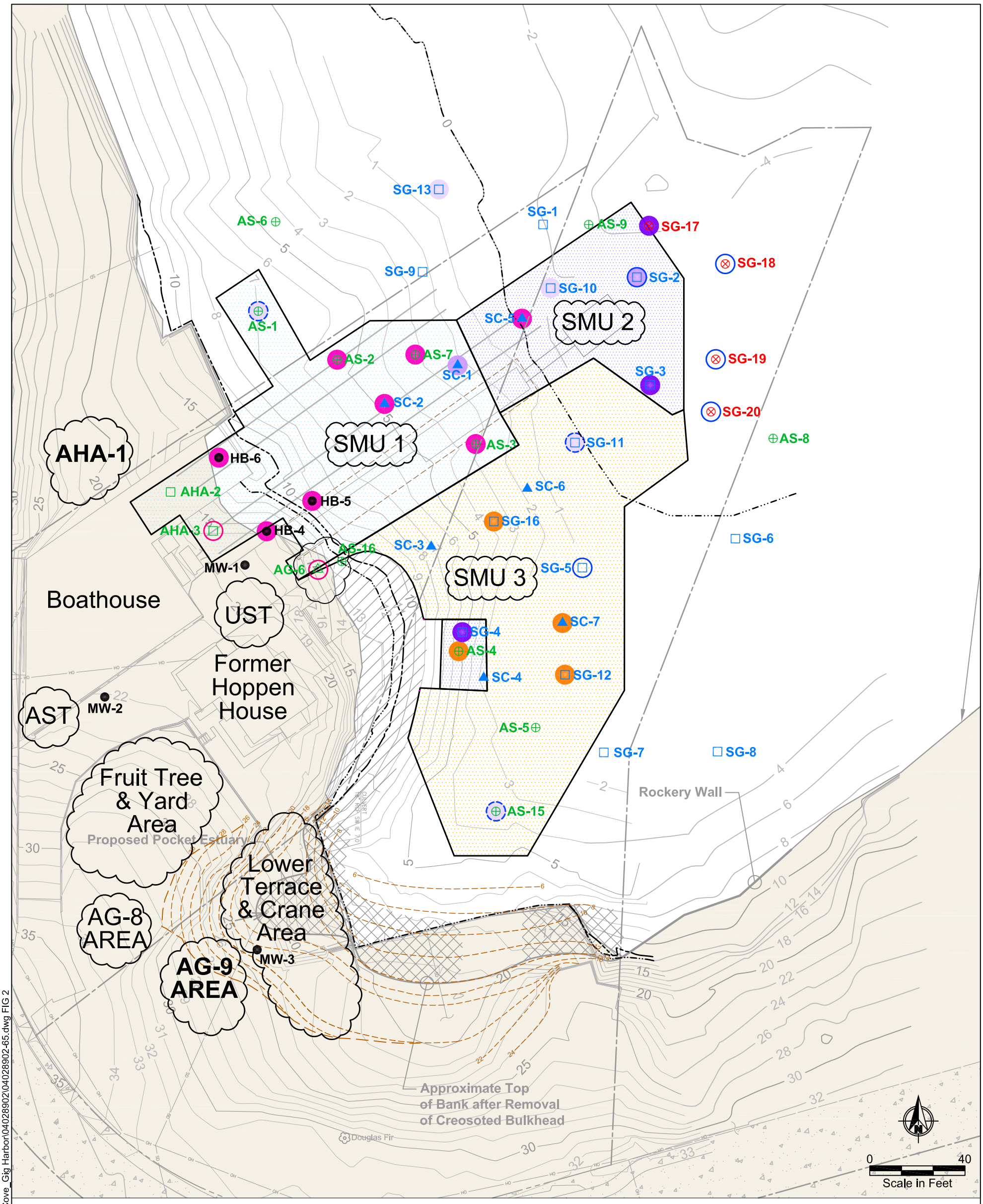
ANCHOR ENVIRONMENTAL, L.L.C.

Figure 1
Vicinity Map
Eddon Boatyard Property
Gig Harbor, Washington



Outfall
Parcel Boundary
Contour in Feet (Approximate)
Proposed Habitat Plantings
Existing Salt Marsh Vegetation
Bank Contours after Bulkhead Removal
Prescriptive Removal, Grading, and Capping
Monitoring Well Location

Historical Footprint of Pier

Anchor Sample Location and Number

2005
AS-1 Surface Sediment
AG-1 Geoprobe
AHA-1 Hand Auger

2006
SC-1 Subsurface Sediment Core
SG-7 Surface Sediment

2007
SG-17 Surface Sample

Exceeds Sediments Cleanup Screening Levels (CSL)
Exceeds Sediment Quality Standards (SQS)
Additional Points with Porewater TBT >0.15 µg/L
Additional Points with Bulk TBT >400 µg/kg
Additional Points with TOCN TBT >6 ppm
Additional Points with Porewater TBT >0.05
Additional Points with Bulk TBT >100 µg/kg

Dredge and Backfill to Original Grade
Dredge without Backfill to Original Grade
Sediment Isolation Cap

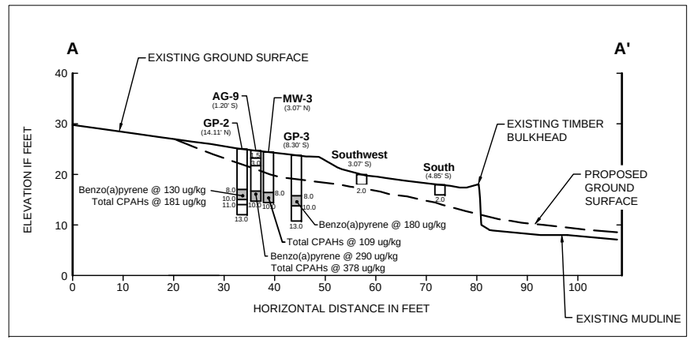
Mean High Water Line
Mean Higher High Water Line
Mean Lower Low Water Line

Jun 08, 2008 11:41am cdavidson K:\Jobs\040289-Harbor Cove_Gig Harbor\04028902\040289~1\902-65.dwg FIG 2

ANCHOR ENVIRONMENTAL, L.L.C.

Notes:
1. Base map prepared from survey provided by David Evans and Associates dated May 2006.
2. Horizontal Datum: SP NAD 83 WA South.
3. Vertical Datum: Mean Lower Low Water (MLLW).

Figure 2
Site Map, Alternative B, and Summary of Sediment Quality Information
Eddon Boatyard Sediment Remediation Project



Legend

- 18 Required Final Regrading Contours
- Final Regraded Surface
- Storm Drain
- -4- Elevation Contour in Feet
- Approximate Extent of Salt Marsh Vegetation
- AA' Cross Section Location and Designation
- Existing Outfall
- Proposed Outfall

0 30
Scale in Feet

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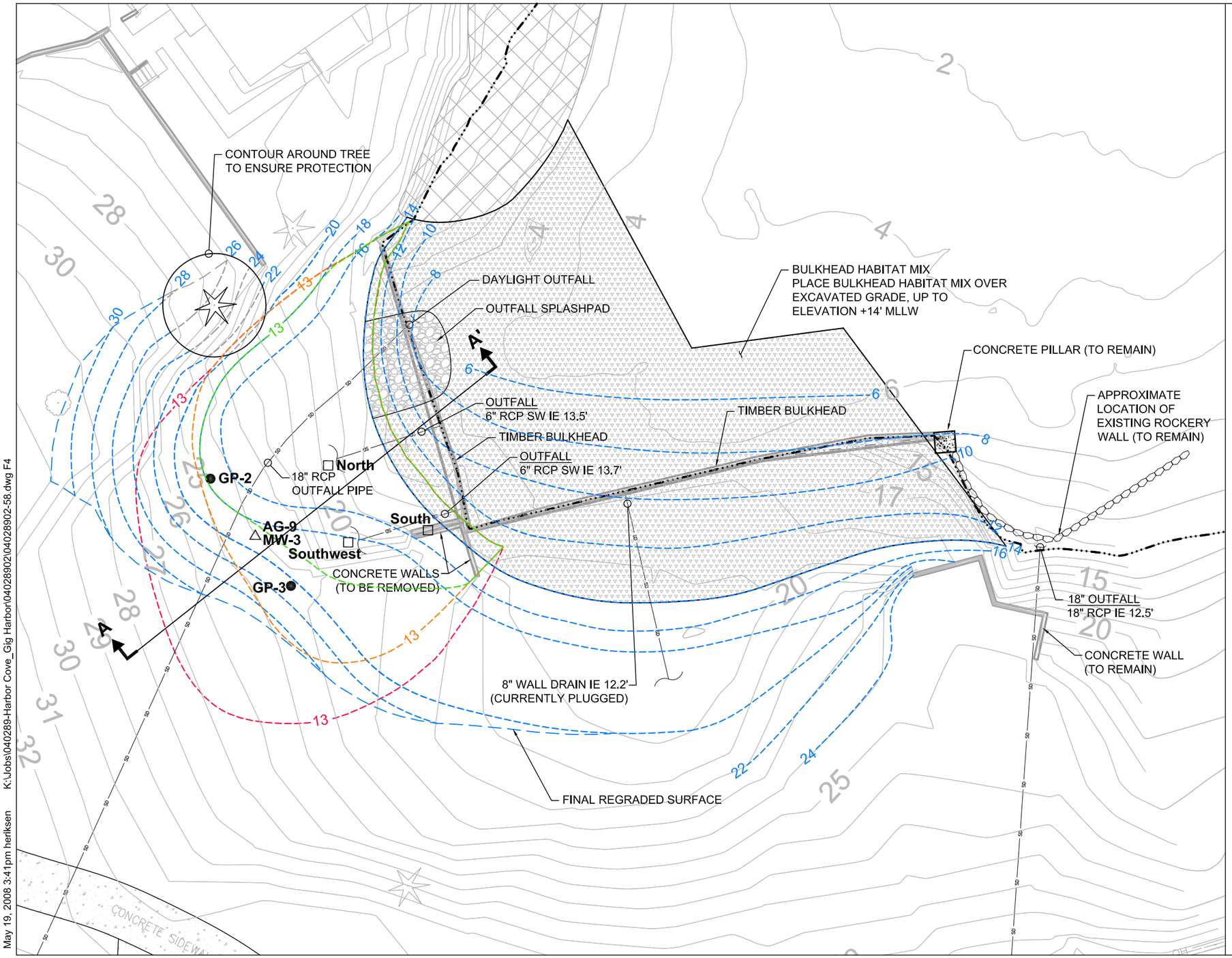
ANCHOR ENVIRONMENTAL, L.L.C.

Figure 3
Conceptual Park Design
Eddon Boatyard Property
Gig Harbor, Washington



LEGEND

- 18 REQUIRED FINAL REGRADING CONTOURS (SCENARIO 1)
- 13 ADDITIONAL EXCAVATION OF PAH-IMPACTED SOILS (SCENARIO 2)
- 13 BASE OF FURTHER EXCAVATION (SCENARIO 3)
- 13 BASE OF FURTHER EXCAVATION (SCENARIO 4)
- FINAL REGRADED SURFACE
- STORM DRAIN
- -4- ELEVATION CONTOUR IN FEET
- APPROXIMATE EXTENT OF SALT MARSH VEGETATION
- PLACE BULKHEAD HABITAT MIX TO REQUIRED THICKNESS - SEE DETAIL

N

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SCALE IN FEET

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ANCHOR ENVIRONMENTAL, L.L.C.

Figure 4
Excavation Behind Timber Bulkhead - Plan View
Eddon Boatyard Property
Gig Harbor, Washington

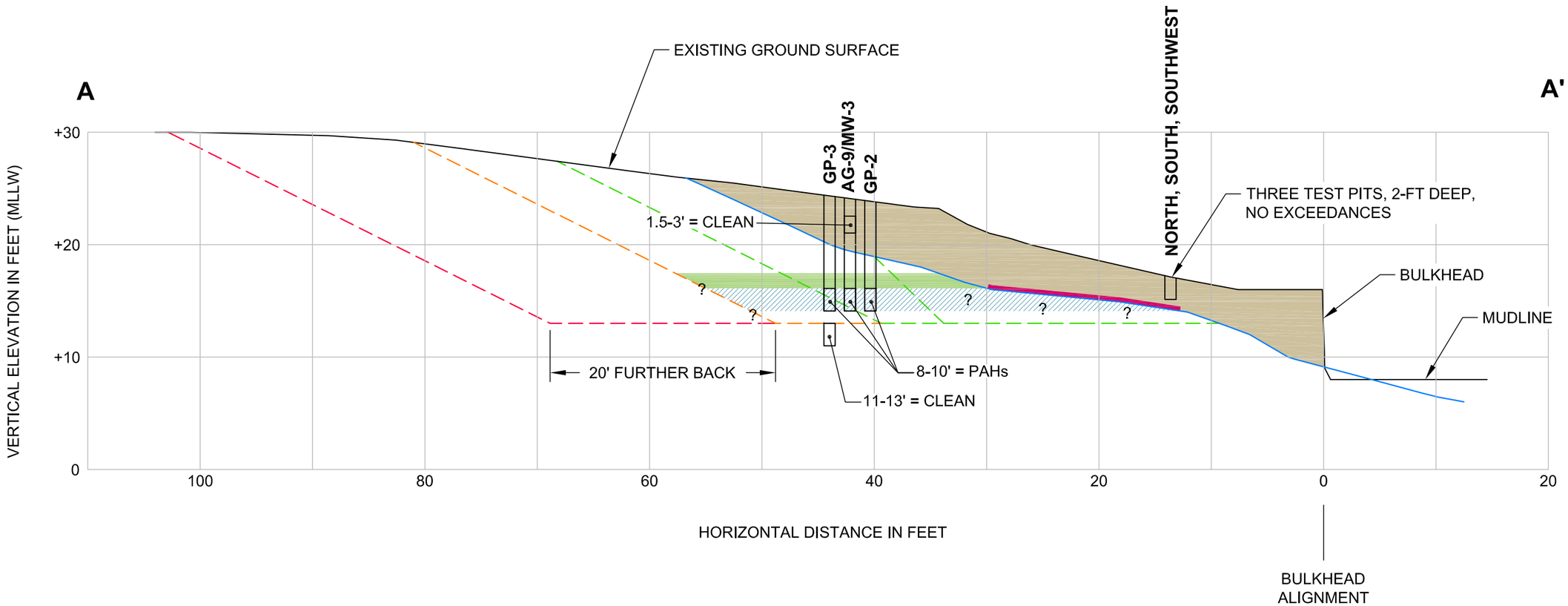

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Figure 5
Area AG-9 Soil Excavation Alternatives - Cross Section View
Eddon Boatyard Property
Gig Harbor, Washington

EXHIBIT C

SUMMARY OF TECHNICAL MEMORANDA AND OPINION LETTERS

1. Phase I Environmental Site Assessment, The Harborview Drive Project, Gig Harbor, Pierce County, Washington. Saltbush Environmental Services, Project No. 990711048, August 23, 1999.

2. Geotechnical Engineering – Phase II Environmental Investigation, Proposed Harbor Cove Development, 3711 and 3805 Harborview Drive, Gig Harbor, Washington, Krazan & Associates, Project No. 104-03021, July 21, 2003.

3. Data Assessment and Conceptual Cleanup Plan, Eddon Boatyard Property, 3711 Harborview Drive, Anchor Environmental, August, 2005.

4. Technical Memorandum No. 1. Anchor Environmental, September 28, 2005.

    a. Ecology Opinion Letter, October 7, 2005.

5. Technical Memorandum No. 2, Evaluation of Sediment Cleanup Alternatives, Anchor Environmental, January 2006.

6. Technical Memorandum No. 3, Work Plan for proposed Investigation Activities, Anchor Environmental, June, 12, 2006.

    a. Ecology Opinion Letter, June 29, 2006

7. Technical Memorandum No. 3 Amendment, Proposed Investigation Activities, Anchor Environmental, July 18, 2006.

8. Technical Memorandum No. 4, Completed Investigation Activities. Anchor Environmental, June 12, 2006.

    a. Ecology Opinion Letter, June 29, 2006.

9. Technical Memorandum No. 5, Sediment Sampling and Analysis Plan, Additional Characterization Activities. Anchor Environmental, July 17, 2006.

10. Technical Memorandum No. 6. Results of Additional Sediment Sampling. Anchor Environmental, January 26, 2007.

11. Technical Memorandum No. 7, Upland Data Results. Anchor Environmental, October, 2006.

12. Revised Technical Memorandum No. 2, Sediment Cleanup Study Report and Analysis of Brownfields Cleanup Alternatives. February 28, 2007.

13. Eddon Boatyard Sediment Cleanup – Revised Dredging/Capping Alternative B, Anchor Environmental, March 29, 2007.
    a. Ecology Opinion Letter, April 17, 2007.

14. Technical Memorandum No. 8, Groundwater Testing Results. Anchor Environmental, March, 2008.

15. Technical Memorandum No. 9. Additional Surface Sediment Sampling Test Results. Anchor Environmental, August 15, 2007.

16. Technical Memorandum No. 10: Terrestrial Ecological Evaluation. Anchor Environmental, March 26, 2008.

PUBLIC PARTICIPATION PLAN

Eddon Boat Park Site

Gig Harbor, Washington

Prepared by
Washington State Department of Ecology
Southwest Regional Office
Toxics Cleanup Program
300 Desmond Drive
Olympia, Washington 98504-7775

May / 2008

TABLE OF CONTENTS

INTRODUCTION

The Washington State Department of Ecology (Ecology) has developed this public participation plan to promote meaningful community involvement during the cleanup of the Eddon Boat Park site. This plan describes the tools that Ecology uses to inform the public about site activities and identify opportunities for the community involvement.

The City of Gig Harbor (the City) is the potentially liable person (PLP) responsible for the cleanup of this site. The City plans to begin cleanup of the site under a Cleanup Action Plan (CAP) and an Agreed Order (legal agreement) with Ecology.

LOCATION AND SITE BACKGROUND

The Eddon Boat Park site is a 0.95 acre lot located at 3711 and 3805 Harborview Drive in the City of Gig Harbor. (Please see page 6 for a map.) The site is defined by the extent of contamination. The upland portion of the site includes a boat repair building and a vacant house. Two other buildings that used to be there were demolished in 2006. In-water areas include bulkheads, piers, two marine railways and marine sediments. The City plans to develop this site as the Eddon Boat Park.

Site Background

This site was used as a residence, boatyard, and boathouse from the 1940s until 2004. Boats were constructed, repaired, and maintained, and vessels were hauled out and launched there. The south part of the site was historically used as a gravel loading operation, city maintenance shop, and retail store.

The properties that make up the Eddon Boat Park site were proposed as a housing development location for the Harbor Cove Group. In November of 2004, voters approved a Land Acquisition and Development General Obligation Bond for $3.5 million. The City of Gig Harbor purchased the property in March of 2005. All leases with prior tenants and operators were ended in 2006 and the City of Gig Harbor took over control of the site by November of 2006.

Between 2005 and 2007, the City conducted investigations of the soils, groundwater, and sediments of the upland and marine areas of the site. These investigations were completed with the assistance of a U.S. Environmental Protection Agency (EPA) Brownfields grant, with technical assistance from Ecology's Voluntary Cleanup Program (VCP).

The City wrote a public participation plan and solicited public input in the investigation and cleanup design process under the EPA Brownfields grant. This current public participation plan is a requirement of the Model Toxics Control Act (MTCA) (70.105D RCW) and replaces the former plan.

Site Contamination

Several contaminants have been found at the site in exceedence of state regulatory standards. The contaminants in the sediments portion of the site include:

- **Heavy metals—**arsenic, copper, lead, and mercury.
- **Organotin compounds**—also known as tri-butyl tin (TBT), this substance was used in anti-fouling paints for boats.
- **Polycyclic aromatic hydrocarbon (PAH) compounds**—PAH's are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil, gas, garbage, or other organic substances like tobacco.
- **Poly-chlorinated biphenyls (PCBs)**—group of toxic chemicals that are no longer produced in the United States, but can persist in the environment for decades.

Carcinogenic (cancer-causing) PAHs are present on the upland portion of the site.

Cleanup Activities

Under the VCP, the City studied the site soils and groundwater. They also removed some contaminated soils and developed a cleanup plan for the sediments. In 2008, the City of Gig Harbor moved from the VCP to Ecology's formal cleanup program, governed by the MTCA.

MTCA requires three major steps in the cleanup process. The Remedial Investigation looks at the extent and nature of contamination at the site. The Feasibility Study evaluates possible cleanup alternatives. The Cleanup Action Plan describes the general cleanup methods. (See page 7 for a diagram of the formal cleanup process.) The Eddon Boat Park site is in the Cleanup Action Plan phase.

PUBLIC PARTICIPATION ACTIVITIES AND RESPONSIBILITIES

The purpose of this Public Participation Plan is to promote public understanding and participation in the MTCA activities planned for this site. This section of the plan addresses how Ecology will share information and receive public comments and community input on the site activities. Ecology uses a variety of activities to increase public participation in the investigation and cleanup of MTCA sites. Ecology will use input provided by the community whenever possible.

The following is a list of the public involvement activities that Ecology will use, their purposes, and descriptions of when and how they will be used during the Eddon Boat Park cleanup. Please see the City of Gig Harbor's November 2006 *Community Involvement Plan* for more information about earlier public involvement processes and for a conceptual design for the future use of the site.

Public Comment Periods and Public Review

Comment periods are the main way Ecology gets feedback from the public on investigations like this. Comment periods usually last 30 days and are required at key points during the investigation, before final decisions are made.

During a comment period, the public can comment in writing. Verbal comments are taken if a public hearing is held. After formal comment periods, Ecology reviews all comments received and may respond in a document called a Responsiveness Summary.

Ecology will consider the need for changes or revisions based on input from the public. If sig-

nificant changes are made, then a second comment period may be held. If no significant changes are made, then the draft document(s) will be finalized.

A public comment period will be held for the Agreed Order for the Cleanup Action Plan (see page 7 for information about this stages of the cleanup process).

Public Meetings and Hearings
Public meetings may be held at key points during the investigation and cleanup process. Ecology also may offer public meetings for actions expected to be of particular interest to the community. These meetings will be held at locations convenient to the community. A public meeting will also be scheduled if ten or more people request one.

Information Repositories
Information repositories are places where the public may read and review site information, including documents that are the subject of public comment. Ecology has established two repositories for the Eddon Boat Park site:

- Peninsula Branch Library, 4424 Point Fosdick Dr. NW, Gig Harbor, WA 98335, (253) 851-3793.
- Washington State Department of Ecology, 300 Desmond Drive, Lacey, WA 98516. Please call (360) 407-6045 for an appointment.

Site information also will be posted on Ecology's Web site at http://www.ecy.wa.gov/programs/tcp/sites/eddonBoatPark/eddon_hp.htm.

Site Register
Ecology's Toxics Cleanup Program uses its bimonthly Site Register to announce all of its public meetings and comment periods, as well as many other activities. To receive the Site Register in electronic or hard copy format, contact Linda Thompson at (360) 407-6069 or by e-mail at Ltho461@ecy.wa.gov. It is also available on Ecology's web site at http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html.

Mailing List
Ecology is compiling a mailing list for the site. It includes individuals, groups, public agencies, elected officials, private businesses, and other known interested parties. The list will be maintained at Ecology's Southwest Regional Office and will be updated when individuals request to be added or removed.

Please contact Hannah Aoyagi at (360) 407-6790 or by e-mail at haoy461@ecy.wa.gov if you would like to be involved or have your address added to or deleted from this mailing list.

Fact Sheets
Ecology will mail fact sheets to persons and organizations interested in the Eddon Boat Park cleanup to inform them of public meetings and comment opportunities and important site activities. Ecology also may mail fact sheets about the progress of site activities.

Web Site
The Eddon Boat Park Web site http://www.ecy.wa.gov/programs/tcp/sites/eddonBoatPark/eddon_hp.htm will have information about public comment periods, investigation progress, and future work.

Newspaper Display Ads
Ecology will place ads in the Tacoma News Tribune to announce public comment periods and public meetings or hearings for the site.

Plan Update
This public participation plan may be updated as the project proceeds. If an update is necessary, the revised plan will be submitted to the public for comment.

Contacts
If you have questions or need more information about this plan or the Sediment Investigation, please contact:

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Hannah Aoyagi, Public Involvement Coordinator
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GLOSSARY

Comment Period: A time period during which the public can review and comment on various documents and proposed actions. For example, a comment period may be provided to allow community members to review and comment on proposed studies or draft reports.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels

Information Repository: A file containing current information, technical reports, and reference documents available for public review. The information repository is usually located in a public building that is convenient for local residents such as a public school, city hall, or library.

Public Notice: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city and county) newspaper of largest circulation; and the opportunity for the interested persons to comment.

Public Participation Plan: A plan prepared to encourage coordinated and effective public involvement designed to the public's needs at a particular site.

Responsiveness Summary: A summary of oral and/or written public comments received by Ecology during a comment period on key documents, and Ecology's responses to those comments. The responsiveness summary is especially valuable during the Cleanup Action Plan phase at a site when it highlights community concerns.

Risk: The probability that a hazardous substance, when released into the environment, will cause an adverse effect in the exposed humans or living organisms.

Sediments: Settled particles located at the bottom of a lake, river or in wetlands. Sediment(s) also includes settled particulate matter exposed by human activity (e.g., dredging) to the biologically active aquatic zone or to the water column.

Toxicity: The degree to which a substance at a particular concentration is capable of causing harm to living organisms, including people, plants and animals.

Maps of the Eddon Boat Park site at 3711 and 3805 Harborview Drive in Gig Harbor, WA.

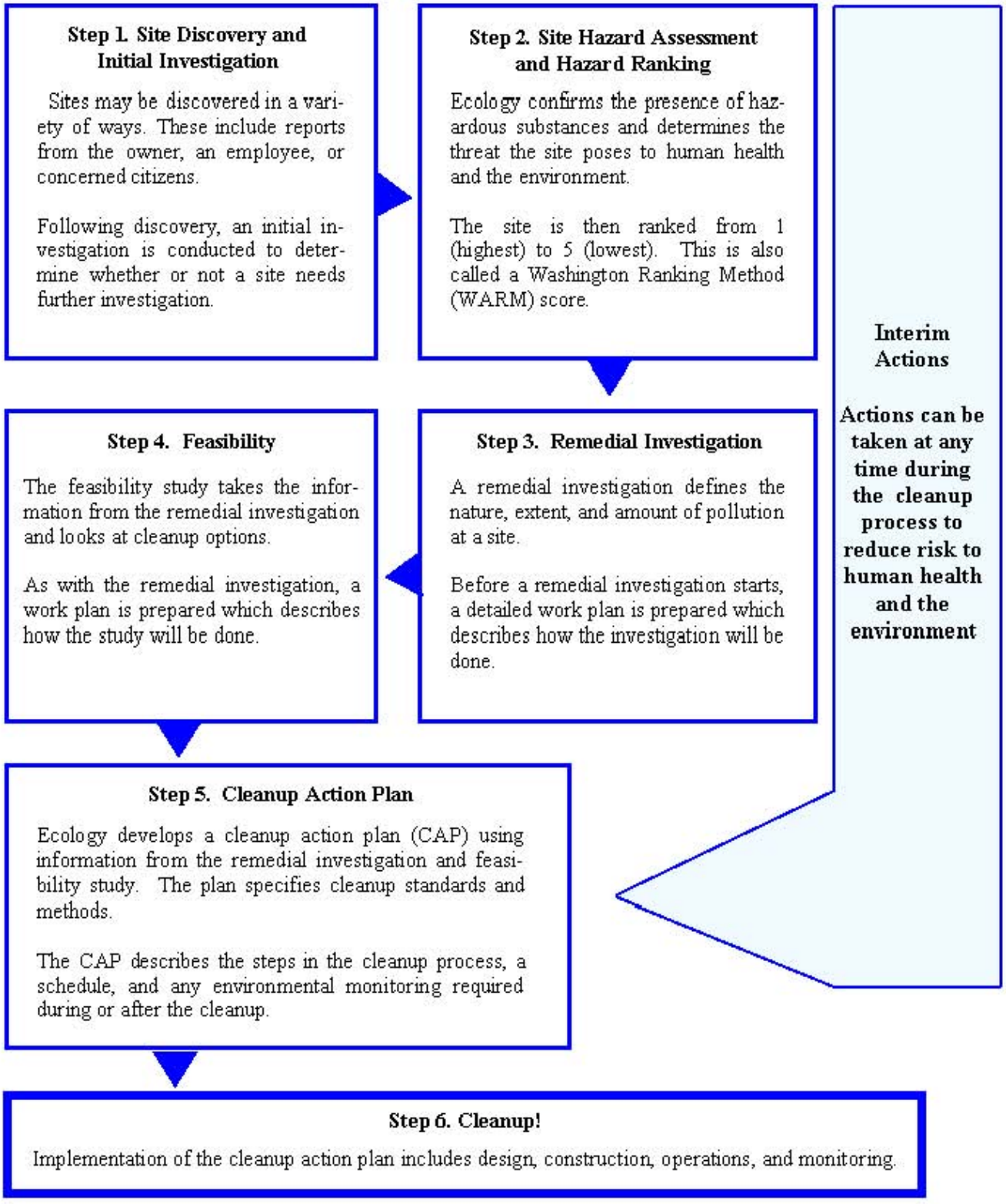

Figure 1. Steps in the formal cleanup process