Transmittal Memorandum

To: Tim Spencer, Oregon Department of Environmental Quality

From: Paul Sherman, Wildlands

CC: Tom Gainer and Bob Schwarz, Oregon Department of Environmental Quality

Date: 5/10/2012

Re: Application for a Solid Waste Beneficial Use Determination, Alder Creek Restoration Project

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Mr. Spencer:

I have enclosed one original and two copies of an Application for a Solid Waste Beneficial Use Determination, including exhibits, for the Alder Creek Restoration Project. The original package also contains the required Tier 2 fees.

As always, if you have any questions or would like any additional information, do not hesitate to contact me in the office at (916) 435-3555 or on my cell at (916) 626-1456.

State of Oregon
Department of
Environmental
Quality

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED
MAY 11 2012
NORTHWEST REGION

Application for a

Solid Waste Beneficial Use Determination

DEQ USE ONLY – BUSINESS OFFICE
Date Received: _____
Amount Received: _____
Check No.: _____
Deposit No.: _____
Forward confirmation of fee payment for:
Eastern Region to DEQ, The Dalles
Northwestern Region to DEQ-NWR, Portland
Western Region to DEQ, Salem

A. REFERENCE INFORMATION *(Please type or print clearly.)*

Portland Harbor Holdings II, LLC				
Legal name of applicant		Business name of applicant if different		
3855 Atherton Road		Rocklin	CA	95765
Mailing address		City	State	Zip
916-435-3555	916-626-1456	psherman@wildlandsinc.com		916-435-3556
Phone	Mobile	E-mail		Fax

Same as Applicant.				
Generator of solid waste (may be same as applicant)				
Mailing address		City	State	Zip
Phone	Mobile	E-mail		Fax

B. TYPE OF BENEFICIAL USE DETERMINATION REQUESTED Beneficial Use Determination applications are categorized based on the type of information and potential amount of work required by DEQ staff to review application materials and render a decision. A tiered review and fee system has been established in rule. The tiers are:

Tier 1 For a beneficial use of a solid waste that does not contain hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product and that will be used in a manufactured product;

Tier 2 For a beneficial use of a solid waste that contains hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product, or involves application on the land;

Tier 3 For a beneficial use of a solid waste that requires research, such as a literature review or risk assessment, or for a demonstration project to demonstrate compliance with this rule.

I am applying for a ☐ Tier 1 ☒ Tier 2 ☐ Tier 3 determination.

C. DOES THIS PROPOSED BENEFICIAL USE INVOLVE LAND APPLICATION OF ANY MATERIAL?
☒ Yes ☐ No

D. SIGNATURE I hereby certify by my signature below that the information contained in this application, and the documents I have attached, are true and correct to the best of my knowledge and belief.

	Mark Heintz	Authorized Rep	5/10/12
Signature of legally authorized representative	Print name	Title	Date

E. REQUIRED ATTACHMENTS TO THIS APPLICATION *(For an application to be complete, it must provide the required information for each listed item of the tier which is being applied for.)*

Tier 1

- ☐ A description of the material, manner of generation, and estimated quantity to be used each year;
- ☐ A description of the proposed use;
- ☐ A comparison of the chemical and physical characteristics of the material proposed for use with the material it will replace;
- ☐ A demonstration of compliance with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing; and
- ☐ Any other information that DEQ may require to evaluate the proposal.

Tier 2

- ☒ The information required for a Tier 1 application;
- ☒ Sampling and analysis that provides chemical, physical, and biological characterization of the material and that identifies potential contaminants in the material or the end product, as applicable;
- ☒ A risk screening comparing the concentration of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrating compliance with acceptable risk levels;
- ☒ Location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk;
- ☒ Contact information of property owner(s) if this is a site-specific land application proposal, including name, address, phone number, e-mail, site address and site coordinates (latitude and longitude); and
- ☒ A description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment.

Tier 3

- ☐ The information required for a Tier 1 & 2 application;
- ☐ A discussion of the justification for the proposal;
- ☐ An estimate of the expected length of time that would be required to complete the project, if it is a demonstration; and
- ☐ If it is a demonstration project, the methods proposed to ensure safe and proper management of the material.

F. PERFORMANCE CRITERIA *(For all tiers - An application for a beneficial use determination must demonstrate satisfactory compliance with the following performance criteria.)*

The use is productive, including:

- There is an identified or reasonably likely use for the material that is not speculative;
- The use is a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by DEQ, and does not constitute disposal; and
- The use is in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices.

The use will not create an adverse impact to public health, safety, welfare, or the environment, including:

- The material is not a hazardous waste under ORS 466.005;
- Until the time the material is used in accordance with a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions;
- Hazardous substances in the material do not significantly exceed the concentration in a comparable raw material or commercial product, or do not exceed naturally occurring background concentrations, or do not exceed acceptable risk levels, including evaluation of persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

The use will not result in the increase of a hazardous substance in a sensitive environment.

The use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions.

The use will comply with all applicable federal, state, and local regulations.

G. FEES *(Must accompany the application for it to be considered complete)*

☐	Tier 1 beneficial use determination	$1,000
☒	Tier 2 beneficial use determination	$2,000
☐	Tier 3 beneficial use determination	$5,000

Make checks out to: **Oregon DEQ**

Total fees included: $2,000

H. APPLICATION PROCEDURE

Step 1
Contact a DEQ staff person for assistance with the preparation of the application. DEQ staff will help with: 1) Determination of the eligibility for a beneficial use determination of a particular waste or process; and, 2) If eligible, establish the tier of beneficial use determination review required and associated fee to submit with the application.

Step 2
Mail the original signed application, all attachments, including the fee payment plus one extra copy to the appropriate regional office (see listing below.) Note that DEQ review work will not begin until a complete application packet is received. Incomplete applications may be returned. DEQ recommends the applicant keep a full copy of all application materials to guard against possible loss in transit.

Step 3
DEQ will contact the applicant, acknowledging receipt of the application, and will identify the staff person assigned to carryout the review. This staff person will contact the applicant if any additional information is needed.

Region	Counties Served	Address & Phone
Eastern Region	Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, and Wheeler	Eastern Region Department of Environmental Quality 400 E Scenic Drive, Ste 2.307 The Dalles, OR 97058 (541) 298-7255 ext. 221
Northwest Region	Clatsop, Clackamas, Columbia, Multnomah, Tillamook, and Washington	Northwest Region DEQ Solid Waste Programs 2020 SW Fourth Ave. Ste 400 Portland, OR 97201 (503) 229-5353
Western Region	Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk, and Yamhill	Western Region DEQ Solid Waste Programs 750 Front St. NE Suite 120 Salem, OR 97301 (503) 378-5047

Attachment A

URS

INFORMATION FOR TIER 2 BENEFICIAL USE DETERMINATION

1.0 Description of the material, manner of generation, and estimated quantity to be used each year.

Material

The material will consist of soil. The *Phase II Environmental Site Assessment for Alder Creek Mill Site*[1] (Phase II ESA) describes the soil types found on site. The soil types include various types of fill and native soil.

Manner of Generation

The *Restoration Plan for Alder Creek Mill Site*[2] (Restoration Plan) describes the restoration project, including the manner in which the material will be generated. The material will be generated by excavating soil on the portion of the project on the outboard side of the Sauvie Island Drainage Improvement Company (SIDIC) levee to create a tidal marsh mosaic, and placing the excavated soil on the inboard side of the levee to create forested upland.

Estimated Quantity

The total estimated quantity of soil to be generated is 450,000 cubic yards (cy). The generation will occur within a single construction season. Attachment B to the BUD application describes how the soil has been classified into three soil management units, referred to as Units 1 through 3. Unit 1 is approximately 500 cy. At this time Portland Harbor Holdings II, LLC (PHH) does not intend to segregate Unit 2 from Unit 3, except as noted below. The total combined volume of Unit 2 and Unit 3 is approximately 449,500 cy. PHH is working with SIDIC to place approximately 30,000 to 50,000 cy of Unit 3 soil within the levee easement for levee maintenance. The approach for segregating Unit 3 soil from Unit 2 soil for this purpose is described in Attachment B.

2.0 Description of proposed use.

The excavated soil will be placed on the inboard side of the SIDIC levee at the site to facilitate forested upland restoration activities. This placement is described as the "Preferred Option" in Section 4.2.1 of the Restoration Plan.

3.0 Comparison of the chemical and physical characteristics of the material proposed for use with the material it will replace.

The excavated soil is not replacing some other material.

4.0 Demonstration of compliance with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing.

The criteria in OAR 340-093-0280 are addressed below.

(1) The applicant has characterized the solid waste and use sufficiently to demonstrate compliance with this rule.

True. See the Phase II ESA, Restoration Plan, and Attachment B to this BUD application.

(2) The use is productive, including:

(a) There is an identified or reasonably likely use for the material that is not speculative.

[1] URS Corporation. 2011. Phase II Environmental Site Assessment for Alder Creek Mill Site. Prepared for Portland Harbor Holdings II, LLC. April.

[2] URS Corporation. 2011. Restoration Plan for Alder Creek Mill Site. Prepared for Portland Harbor Holdings II, LLC. October.

True. Use of the soil on the inboard side of the SIDIC is not speculative. PHH entered into a Prospective Purchaser Agreement (PPA) with DEQ to purchase the site for the purpose of conducting restoration. PHH is now the site owner.

(b) The use is a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by the Department and does not constitute disposal.

Not applicable.

(c) The use is in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices.

True. On-site re-use of excavated soils is a standard practice at restoration sites to maximize the benefit to the environment while controlling costs.

(3) The use will not create an adverse impact to public health, safety, welfare, or the environment, including:

(a) The material is not a hazardous waste under ORS 466.005.

True. The excavated soil is not a hazardous waste under ORS 466.005.

(b) Until the time a material is used according to a beneficial use determination, the material must be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions.

The soil will remain in-situ until commencement of restoration activities. Once restoration activities begin, the material will be transported from the outboard side of the SIDIC levee to the inboard side using the best management practices outlined in the erosion and sediment control plan (ESCP) that will be prepared as part of an NPDES-1200C construction stormwater permit application for the site.

(c) Hazardous substances in the material meet one of the criteria in this subsection,

(A) Do not significantly exceed the concentration in a comparable raw material or commercial product.

True. The majority of the material does not contain substances at concentrations that significantly exceed a comparable raw material. See Attachment B to this BUD application for additional information on substances present in the material.

(B) Do not exceed naturally occurring background concentrations.

True. The majority of the soil does not contain metals at concentrations that exceed background concentrations. See Attachment B to this BUD application.

(C) Will not exceed acceptable risk levels, including evaluation of persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

True. The proposed method for placing the soil on the inboard side of the SIDIC levee is protective of human health and the environment. See Attachment B to this BUD application.

(d) The use will not result in the increase of a hazardous substance in a sensitive environment.

True. In fact, the use will actually result in the decrease of hazardous substances in a sensitive environment. Currently, the soils containing hazardous substances:

1. Are located proximal to Multnomah Channel and the Willamette River.

2. Are located outboard of the SIDIC levee and are subject to flooding.
3. Are exposed to precipitation, leaching, and stormwater runoff due to minimal vegetation cover.
4. Are unrestricted in terms of human access and groundwater use.
5. Contain substances at concentrations that exceed DEQ human health or ecological screening criteria, including at the ground surface where human or ecological receptors could come in contact with contaminants.

Once used in the beneficial manner proposed herein, the soils containing contaminants:

1. Will be located inboard of the SIDIC levee and protected from flooding.
2. Will be protected from exposure to precipitation, leaching, and stormwater runoff by temporary and permanent erosion and sediment control BMPs.
3. Will be placed under a deed restriction or conservation easement restricting future uses and forbidding use of groundwater.
4. Soils with DEQ human health and ecological screening criteria exceedances will be capped by soils with no screening criteria exceedances to prevent direct contact with human or ecological receptors.

(e) The use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions.

True. As noted earlier, there is a large quantity of organic material (i.e. wood waste) located on the outboard side of the levee which is currently being processed and removed from the site. After processing, residual organic material will be removed from the outboard side of the levee during the restoration project, and will either be used for mulch/erosion control on site, or removed from the property. DEQ[3] expressed the following concerns regarding potential burial of a large mass of organic material during beneficial use of the soil:

- Buried organics have the potential to generate methane during decomposition (a concern for both structures as well as the potential to kill upland plants).
- Buried organics have the potential to cause settlement during decomposition.
- Buried organics have the potential to change geochemistry, i.e. creation of reducing conditions which could cause soluble metals to mobilize.

With proper management by PHH, organic material decomposition concerns will not become an issue during beneficial use of the soil for the following reasons:

1. Organic material is actively being processed and removed from the site. At the time that PHH begins restoration, minimal wood waste is expected to be present on site. To the extent that wood waste remains at the start of restoration, and the organic material can be practicably segregated from soil using standard heavy equipment (e.g., bulldozers, belly scrapers, etc.), the remaining organic material will be stockpiled and set aside until all soils have been placed inboard of the SIDIC levee. Only then will the organic material be placed over the soil. This approach will minimize the potential for burial of organic matter in soil, and therefore methane generation will not be an issue for restoration.

[3] Telephone conversation between Paul Sherman, Portland Harbor Holdings, and Tim Spencer, DEQ, April 3, 2012.

PHH will be required to monitor the success of the restoration effort, including development of an upland forest community inboard of the SIDIC levee, and respond to any deficiencies in the restoration effort, including excessive plant mortality. Since the restoration approach will not result in burial of excessive quantities of organic matter in soil, plant mortality due to methane will not be an issue for restoration.

2. The proposed beneficial use of soil will be managed to ensure that it will not result in burial of discrete layers of organic material that would otherwise decompose, compress, and result in settlement. Further, the proposed end use of the area inboard of the SIDIC levee will be an upland forest. There will be no elements of the restoration project that are sensitive to excessive settlement. To the extent that any settlement does occur (whether or not the settlement is the result of buried organic matter), it will not be a concern for the proposed end use. In fact, small variations in topography within the forested upland would provide micro-topography which is beneficial to terrestrial animals expected to utilize the site after restoration.

3. During the Phase II ESA, URS installed soil borings and collected groundwater samples for analysis of metals. Groundwater samples were collected from seven soil borings located in areas with thick and laterally extensive wood waste piles (SB-4, SB-8, SB-9, WW-1 through WW-4) and from 10 borings located in areas with no wood waste (see Table 12 and Figure 4 of the Phase II ESA). Two metals, arsenic and barium, were detected in every sample. All detected concentrations of arsenic exceeded the Joint Source Control Strategy (JSCS) criterion protective of residential exposure to tap water and all detected concentrations of barium exceeded the DEQ Level II SLV protective of freshwater benthic communities. However, the distribution of arsenic and barium in groundwater across the site did not display a pattern that could be attributed to a source or an effect such as geochemical changes due to wood waste. For example, the average concentration of arsenic in the seven wood waste area borings was 19.8 micrograms per liter (ug/L). The average concentration in the 10 non-wood waste borings was higher, at a concentration of 30.0 ug/L. Similarly, the average barium concentration in the wood waste borings was 98.0 ug/L, compared to a higher concentration of 137.5 ug/L in the non-wood waste borings. These data indicate that under the existing site conditions where large quantities of wood waste are present, including large quantities of buried wood waste, there is no apparent geochemical effect that is causing soluble metals to mobilize. Since the proposed beneficial use of soil will minimize the potential for burial of organic material, it is unlikely that the beneficial use will cause soluble metals to mobilize due to organic matter.

If needed, dust generation during restoration will be mitigated by applying water to haul roads and other work areas. During and immediately following the earthwork on site, the area north of the SIDIC levee is expected to look similar to other adjacent areas where agricultural activities result in exposure and grading of soil. Upon completion of restoration, the area will be planted with trees and other native plant species, eventually maturing to an upland forest. Bare soil will be seeded with a native seed mix. No other nuisance conditions are expected.

(f) The use must comply with applicable federal, state, and local regulations.

The use will comply with applicable federal, state, and local regulations. Table 1 of the Restoration Plan identifies the permits and regulatory approvals that are expected to be required for the project.

5.0 Sampling and analysis that provides chemical, physical, and biological characterization of the material and that identified potential contaminants in the material or the end product.

See Attachment B to the BUD application.

6.0 Risk screening comparing the concentrations of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrating compliance with acceptable risk levels.

See Attachment B to the BUD application. The soils will be beneficially used in a manner that will not result in human or ecological receptor exposure to hazardous substances.

7.0 Location or type of land use where the material will be applied, consistent with the risk scenarios use to evaluate risk.

The *Phase I Environmental Site Assessment, Alder Creek Lumber Mill North*[4] (Phase I ESA) describes the existing conditions of the area inboard of the SIDIC levee. The existing conditions are also summarized in Section 4.2.1 of the Restoration Plan. This area consists of facilities associated with the Alder Creek Lumber Mill. The eastern part of the area is developed with a large truck barn, several sheds and small ancillary buildings, a large gravel-paved yard, a hoist, and a truck weigh station. The western portion of the area was used as a log storage yard. No logs are currently stored there.

The future use will be an upland forest, with a deed restriction or similar instrument preserving it as such in perpetuity.

8.0 Contact information of property owners.

The current property owner is PHH. Contact information is provided on the BUD application.

9.0 Description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment.

See Attachment B to the BUD application.

[4] URS Corporation. 2011. Phase I Environmental Site Assessment, Alder Creek Lumber Mill North. Prepared for Portland Harbor Holdings II, LLC. October.

Technical Memorandum

URS

To: Tim Spencer, Oregon DEQ

Bob Schwarz, Oregon DEQ

Cc: Paul Sherman, Portland Harbor Holdings II, LLC

From: David Weatherby, RG, URS

Date: August 7, 2012

Subject: Addendum #1 to Beneficial Use Determination Application for Alder Creek Mill

INTRODUCTION

This technical memorandum constitutes Addendum #1 to the Application for Solid Waste Beneficial Use Determination (BUD) submitted by Portland Harbor Holdings II, LLC (PHH) to Oregon Department of Environmental Quality (DEQ) on May 10, 2012. Since submittal of the application, PHH has continued to develop its restoration plans. This addendum describes and provides an assessment of the chemistry of sediments that PHH proposes to beneficially use as part of the project.

BENEFICAL USE OF SEDIMENT

As described in the application, the restoration project will include soil excavation on the outboard side of the Sauvie Island Drainage Improvement Company (SIDIC) levee to create a mosaic of channels, marsh, and riparian habitat. The excavated channels will connect to the Multnomah Chanel and the Willamette River, allowing the exchange of surface water from both water bodies. The channels will consist of permanent, open water areas. The majority of the material excavated to create the habitat will consist of soil. The beneficial use of this soil, as described in the application, will include use of the soil to facilitate forested upland restoration activities and to enhance the SIDIC levee.

PHH has finalized the locations for the connections between the project, the Multnomah Channel, and the Willamette River; these connections will require excavation of material below the mean low water line (MLW) within Oregon Department of State Land property (State Lands) at three connection locations shown on Attachment A to this addendum, including one location at the south shoreline of the site on Multnomah Channel and two locations at the east shoreline of the site on the Willamette River. Attachment A illustrates the locations; a total of approximately1,600 yd^3 of material will be removed from State Lands. Excavation depths below MLW are expected to range from 0 to 5 feet below existing surfaces. Since the excavated connections will progress from upland areas underlain by soil to in-water areas underlain by sediment, the excavated material will initially consist of soil and will transition to sediment. The soil will be managed in accordance with the original BUD application. The sediment will be managed in accordance with this addendum. The distinction between soil and sediment will be determined during excavation of the channels by a qualified professional (e.g., geologist or geotechnical engineer).

The characterization of soils on site for the purpose of beneficial use was provided in Attachment B of the BUD application. Specifically, analytical data for soil were compared to the DEQ Level II Screening Level Values (SLVs) for ecological receptors and the DEQ Clean Fill Criteria, and this comparison resulted in the classification of the soil into three management units. Since sediments adjacent to the site have not been characterized as part of the environmental investigations conducted by URS on behalf of PHH, site-specific sediment analytical data are not available for comparison to the SLVs and Clean Fill Criteria.

To facilitate the characterization of sediment to be excavated as part of the project, URS obtained sediment analytical data from Appendix A-3 of the August 2011 Portland Harbor Draft Final Remedial Investigation (RI) for surface and subsurface sediment sample stations located off-shore of the Alder Creek Mill site. Analytical data are available for six surface sample stations and two subsurface sample stations at the locations circled in red on Maps 2.2-1c, 2.2-1d, and 2.2-2d from the RI report. These maps are included in Attachment B to this addendum. The analytical data are provided on Table 1 and are compared to the ecological receptor SLVs. Chemicals detected at concentrations that exceed the ecological receptor SLVs include individual and total organochlorine pesticides (DDD, DDE, and DDT), dibenzofuran, lead, mercury, and zinc.

Conservatively assuming these data are representative of the sediment to be excavated during restoration, the excavated sediments would be classified as soil management "Unit 1" using the classification approach described in Attachment B to the BUD application. This management unit is defined as soil that can be placed at the upland forest restoration site, but would require capping with "clean" soils (i.e., Unit 2 or 3 soils without SLV exceedances) to prevent ecological receptor exposure to the soils.

In summary, PHH will beneficially use the excavated soil and sediment for the creation of forested upland on the inboard side of the SIDIC levee. The sediment will be managed as Unit 1. After placement, the sediment will be capped with Unit 2 or Unit 3 soils.

Addendum 1 Table 1. Sediment Analytical Results Near Alder Creek Mill Site
Portland Harbor RI Dataset

Analytes	Units	Sample Concentrations										Soil Screening DEQ Level II SLVs [1]				Soil Background Concentration[2]
		LW2-B005	LW2-G037	LW2-G045	LW3-MC006	LW3-MC006	LW3-MC006	LW3-MC009	LW3-MG006	LW3-MG009	LW3-MG010					
		Surface	Surface	Surface	Subsurface (30-110 cm)	Subsurface (110-196 cm)	Subsurface (196-264 cm)	Subsurface (30-111 cm)	Surface	Surface	Surface	Plants	Inverts	Birds	Mammals	
Aroclor 1016	ug/kg	1.20 U	1.30 U	1.30 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	3.70 U	1.30 U	--	--	--	100,000	--
Aroclor 1221	ug/kg	2.20 U	2.30 U	2.30 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	2.60 U	1.30 U	--	--	--	--	--
Aroclor 1232	ug/kg	2.00 U	2.10 U	2.10 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	4.10 U	1.30 U	--	--	--	--	--
Aroclor 1242	ug/kg	1.20 U	1.30 U	1.30 U	1.30 U	1.30 U	1.00 U	**53.0**	1.30 U	1.40 U	1.30 U	--	--	1,500	5,000	--
Aroclor 1248	ug/kg	1.60 U	1.60 U	1.60 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	1.40 U	1.30 U	--	--	--	--	--
Aroclor 1254	ug/kg	0.730 U	0.760 U	0.760 U	1.30 U	1.30 U	1.00 U	**96.0**	**7.40**	**6.60 J**	1.30 U	--	--	700	4,000	--
Aroclor 1260	ug/kg	0.940 U	0.980 U	0.980 U	1.30 U	1.30 U	1.00 U	**64.0**	**3.50**	**4.50**	1.30 U	--	--	--	--	--
Aroclor 1262	ug/kg	1.10 U	1.20 U	1.20 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	1.40 U	1.30 U	--	--	--	--	--
Aroclor 1268	ug/kg	0.960 U	1.00 U	1.00 U	1.30 U	1.30 U	1.00 U	1.50 U	1.30 U	1.40 U	1.30 U	--	--	--	--	--
Total Aroclors	ug/kg	2.20 UT	2.30 UT	2.30 UT	1.30 UT	1.30 UT	1.00 UT	**213 T**	**10.9 T**	**11.1 JT**	1.30 UT	40,000	--	--	4,000	--
1-Methylnaphthalene	ug/kg	-	-	-	**17.0**	**16.0**	**0.400 J**	**59.0**	**8.50**	**15.0**	**0.540 J**	--	--	--	--	--
2-Methylnaphthalene	ug/kg	**3.70**	**0.920 J**	**5.70**	**28.0**	**37.0**	**0.440 J**	**79.0**	**15.0**	**60.0**	**1.20 J**	--	--	--	--	--
Acenaphthene	ug/kg	**2.30 J**	**0.490 J**	**3.30**	**47.0**	**16.0**	**1.20 J**	**240**	**27.0**	**22.0**	**1.70 J**	20,000	--	--	--	--
Acenaphthylene	ug/kg	**16.0**	**2.70**	**41.0**	**17.0**	**7.20**	**1.10 J**	**61.0**	**28.0**	**27.0**	**7.90**	--	--	--	--	--
Anthracene	ug/kg	**10.0**	**3.10**	**24.0**	**65.0**	**40.0**	**5.60**	**180**	**48.0**	**98.0**	**6.10**	--	--	--	--	--
Benzo(a)anthracene	ug/kg	**77.0**	**11.0**	**170**	**86.0**	**46.0**	**22.0**	**510**	**180**	**190**	**47.0**	--	--	--	--	--
Benzo(a)pyrene	ug/kg	**150**	**18.0**	**350**	**88.0**	**47.0**	**18.0**	**720**	**260**	**290**	**88.0**	--	--	--	125,000	--
Benzo(b)fluoranthene	ug/kg	**120**	**17.0**	**290**	**79.0**	**42.0**	**21.0**	**700**	**230**	**310**	**78.0**	--	--	--	--	--
Benzo(e)pyrene	ug/kg	-	-	-	-	-	-	-	**160**	**210**	**60.0**	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	**150**	**18.0**	**310**	**41.0**	**23.0**	**8.70**	**590**	**200**	**240**	**76.0**	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	**38.0**	**6.20**	**96.0**	**26.0**	**17.0**	**8.30**	**200**	**73.0**	**110**	**25.0**	--	--	--	--	--
Chrysene	ug/kg	**100**	**16.0**	**210**	**97.0**	**50.0**	**19.0**	**610**	**220**	**320**	**63.0**	--	--	--	--	--
Dibenzo(a,h)anthracene	ug/kg	**15.0**	**2.00 J**	**33.0**	**9.40**	**5.90**	**2.00**	**70.0**	**26.0**	**30.0**	**8.70**	--	--	--	--	--
Dibenzothiophene	ug/kg	-	-	-	**14.0**	**3.40**	**0.290 J**	**120**	**25.0**	**16.0**	**5.70**	--	--	--	--	--
Fluoranthene	ug/kg	**99.0**	**20.0**	**210**	**140**	**53.0**	**32.0**	**1,200**	**310**	**580**	**67.0**	--	--	--	--	--
Fluorene	ug/kg	**2.30 J**	**0.690 J**	**3.30**	**36.0**	**19.0**	**0.910 J**	**170**	**26.0**	**18.0**	**2.80**	--	30,000	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	**130**	**14.0**	**290**	**45.0**	**24.0**	**9.50**	**580**	**190**	**240**	**68.0**	--	--	--	--	--
Naphthalene	ug/kg	**11.0**	2.90 U	**17.0**	**34.0**	**28.0**	**1.80**	**130**	**32.0**	**73.0**	**4.50**	10,000	--	--	3,900,000	--
Perylene	ug/kg	-	-	-	-	-	-	-	**66.0**	**82.0**	**23.0**	--	--	--	--	--
Phenanthrene	ug/kg	**21.0**	**11.0**	**38.0**	**210**	**130**	**8.50**	**1,100**	**190**	**190**	**74.0**	--	--	--	--	--
Pyrene	ug/kg	**160**	**28.0**	**320**	**170**	**74.0**	**29.0**	**1,200**	**410**	**600**	**94.0**	--	--	--	--	--
Total BaPEq	ug/kg	**198 T**	**24.3 JT**	**459 T**	**119 T**	**64.3 T**	**25.4 T**	**972 T**	**347 T**	**395 T**	**116 T**	--	--	--	--	--
Total Benzofluoranthenes (calc'd)	ug/kg	**160 T**	**23.0 T**	**390 T**	-	-	-	**900 T**	-	**420 T**	**100 T**	--	--	--	--	--
High Molecular Weight PAH	ug/kg	**1,040 T**	**150 JT**	**2,280 T**	**780 T**	**380 T**	**170 T**	**6,400 T**	**2,100 T**	**2,900 T**	**610 T**	--	--	--	--	--
Low Molecular Weight PAH	ug/kg	**66.3 JT**	**18.9 JT**	**132 T**	**440 T**	**280 T**	**20.0 JT**	**2,000 T**	**370 T**	**490 T**	**98.0 JT**	--	--	--	--	--
Total PAHs	ug/kg	**1,110 JT**	**169 JT**	**2,410 T**	**1,200 T**	**660 T**	**190 JT**	**8,300 T**	**2,500 T**	**3,400 T**	**710 JT**	--	--	--	--	--
Total PCBs	ug/kg	2.20 UT	2.30 UT	2.30 UT	1.30 UT	1.30 UT	1.00 UT	**213 T**	**10.9 T**	**11.1 JT**	1.30 UT	--	--	--	--	--
2,4'-DDD	ug/kg	**0.371 NJ**	0.0334 U	**0.394 NJ**	0.160 U	0.160 U	0.160 U	4.20 U	**0.960 J**	**0.510 NJ**	0.160 U	--	--	10.0	100,000	--
2,4'-DDE	ug/kg	0.0328 U	0.0355 U	0.0352 U	0.0460 U	0.0460 U	0.0460 U	1.20 U	0.0460 U	0.0470 U	0.0460 U	--	--	10.0	100,000	--
2,4'-DDT	ug/kg	**0.460 NJ**	**0.335 J**	**0.387 NJ**	0.0610 U	0.0610 U	0.0610 U	**7.40**	0.200 U	**0.430**	0.0610 U	--	--	10.0	100,000	--
4,4'-DDD	ug/kg	**0.629**	**0.210 J**	**1.47 J**	0.0730 U	0.0730 U	0.120 U	**14.0**	**1.90**	**2.50**	**0.170 J**	--	--	10.0	100,000	--
4,4'-DDE	ug/kg	**0.140**	**0.172**	**0.714 NJ**	0.0270 U	0.0270 U	0.180 U	**12.0 NJ**	**0.860 J**	**2.20 NJ**	0.120 U	--	--	10.0	100,000	--
4,4'-DDT	ug/kg	**0.461 J**	**0.218 J**	**0.585 J**	0.180 U	0.180 U	0.180 U	7.30 U	**0.760 J**	0.950 U	0.180 U	--	--	10.0	100,000	--
Aldrin	ug/kg	0.0301 UJ	**R**	**0.257 NJ**	0.120 U	0.120 U	0.120 U	0.670 U	0.120 U	0.310 U	0.120 U	--	--	--	25,000	--
alpha-Endosulfan	ug/kg	0.0276 U	0.0299 U	0.0297 U	0.0370 U	0.0370 U	0.0370 U	0.210 U	0.250 U	**0.130 J**	0.0370 U	--	--	42,000	20,000	--
alpha-Hexachlorocyclohexane	ug/kg	0.0321 U	0.0347 U	**0.0510 J**	0.0970 U	0.0970 U	0.0970 U	**0.650 J**	0.0970 U	0.0990 U	0.0970 U	--	--	--	--	--
beta-Endosulfan	ug/kg	0.0231 U	0.0250 U	0.426 U	0.0310 U	0.0310 U	0.0310 U	0.180 U	0.200 U	**0.630**	0.0310 U	--	--	42,000	20,000	--
beta-Hexachlorocyclohexane	ug/kg	**5.13 NJ**	0.0351 U	0.0348 U	0.140 U	0.140 U	0.200 U	0.780 U	0.140 U	0.650 U	0.140 U	--	--	--	--	--
cis-Chlordane	ug/kg	0.0320 U	0.0346 U	0.0343 U	0.0310 U	0.0310 U	0.0310 U	0.360 U	0.0310 U	0.110 U	0.0310 U	--	--	9,000	250,000	--
cis-Nonachlor	ug/kg	0.0400 U	**0.451 NJ**	0.0430 U	0.0870 U	0.0870 U	0.0870 U	6.10 U	0.150 U	0.190 U	0.0870 U	--	--	--	--	--
delta-Hexachlorocyclohexane	ug/kg	0.0686 UJ	**0.693 NJ**	0.0737 U	0.110 U	0.110 U	0.110 U	0.620 U	0.110 U	0.150 U	0.110 U	--	--	--	--	--
Dieldrin	ug/kg	0.0492 U	0.0532 U	**0.190 NJ**	**0.160 NJ**	**0.0750 NJ**	0.0300 U	1.20 U	0.200 U	0.460 U	0.0300 U	--	--	300	3,000	--
Endosulfan sulfate	ug/kg	0.0709 UJ	**0.534 NJ**	0.0761 U	0.0580 U	0.0870 U	0.0580 U	1.20 U	0.120 U	0.250 U	0.0580 U	--	--	42,000	20,000	--
Endrin	ug/kg	0.0381 UJ	0.0412 UJ	**0.179 NJ**	0.0710 U	0.0710 U	0.0710 U	1.20 U	0.300 U	0.210 U	0.0710 U	--	--	40.0	5,000	--
Endrin aldehyde	ug/kg	0.0420 U	0.0454 U	0.0450 UJ	0.0420 U	0.0420 U	0.0420 U	0.240 U	0.200 U	0.210 U	0.0420 U	--	--	--	--	--
Endrin ketone	ug/kg	0.0282 U	0.0306 U	0.0303 U	0.0290 U	0.0290 U	0.0290 U	1.90 U	0.140 U	0.210 U	0.0290 U	--	--	--	--	--
gamma-Hexachlorocyclohexane	ug/kg	0.0733 U	0.0793 U	0.0787 U	0.140 U	0.0620 U	0.300 U	**0.590 J**	**0.740 NJ**	0.690 U	0.0620 U	--	--	8,000	1,000,000	--
Heptachlor	ug/kg	0.0292 U	0.0316 U	0.0314 U	0.0760 U	0.0760 U	0.0760 U	1.20 U	0.0760 U	0.300 U	0.0760 U	--	--	--	15,000	--
Heptachlor epoxide	ug/kg	0.0381 U	0.0412 U	0.0409 U	0.0680 U	0.0680 U	0.0680 U	2.10 U	**0.130 J**	0.250 U	0.0680 U	--	--	--	--	--
Methoxychlor	ug/kg	0.0380 U	0.0411 UJ	**0.944 J**	0.0750 U	0.0750 U	0.0750 U	3.10 U	0.200 U	1.30 U	0.0750 U	--	--	--	500,000	--
Mirex	ug/kg	0.0345 U	0.0373 U	0.0370 U	0.120 U	0.120 U	0.120 U	0.670 U	0.120 U	0.130 U	0.120 U	--	--	--	--	--
Oxychlordane	ug/kg	0.0173 U	0.0187 U	0.0186 U	0.0610 U	0.0610 U	0.0990 U	0.340 U	0.0610 U	**2.80 NJ**	0.0610 U	--	--	--	--	--
Total Chlordanes	ug/kg	0.0400 UT	**1.12 NJT**	0.0430 UT	0.0870 UT	0.0870 UT	0.0990 UT	6.10 UT	**0.300 NJT**	**2.80 NJT**	**0.0710 JT**	--	--	--	--	--
Total Endosulfan	ug/kg	0.0709 UJT	**0.534 NJT**	0.426 UT	0.0580 UT	0.0870 UT	0.0580 UT	1.20 UT	0.250 UT	**0.760 JT**	0.0580 UT	--	--	--	--	--
Total of 2,4' and 4,4'-DDD	ug/kg	**1.00 NJT**	**0.210 JT**	**1.86 NJT**	0.160 UT	0.160 UT	0.160 UT	**14.0 T**	**2.90 JT**	**3.00 NJT**	**0.170 JT**	--	--	10.0	100,000	--
Total of 2,4' and 4,4'-DDE	ug/kg	**0.140 T**	**0.172 T**	**0.714 NJT**	0.0460 UT	0.0460 UT	0.180 UT	**12.0 NJT**	**0.860 JT**	**2.20 NJT**	0.120 UT	--	--	10.0	100,000	--
Total of 2,4' and 4,4'-DDT	ug/kg	**0.921 NJT**	**0.553 JT**	**0.972 NJT**	0.180 UT	0.180 UT	0.180 UT	**7.40 T**	**0.760 JT**	**0.430 T**	0.180 UT	--	--	10.0	100,000	--
Total of 2,4' and 4,4'-DDD, -DDE, -DDT	ug/kg	**2.06 NJT**	**0.935 JT**	**3.55 NJT**	0.180 UT	0.180 UT	0.180 UT	**33.0 NJT**	**4.50 JT**	**5.60 NJT**	**0.170 JT**	--	--	10.0	100,000	--
Total of 4,4'-DDD, -DDE, -DDT	ug/kg	**1.23 JT**	**0.600 JT**	**2.77 JT**	-	-	-	-	-	-	-	--	--	--	--	--
Toxaphene	ug/kg	9.03 U	9.77 U	9.70 U	3.40 U	3.40 U	3.40 U	220 U	13.0 U	17.0 U	4.50 U	--	--	--	1,000,000	--
trans-Chlordane	ug/kg	0.0202 U	**0.671 NJ**	0.0217 U	0.0270 U	0.0270 U	0.0270 U	1.20 U	0.150 U	0.280 U	**0.0710 J**	--	--	9,000	250,000	--
trans-Nonachlor	ug/kg	0.0349 U	0.0377 U	0.0374 U	0.0340 U	0.0340 U	0.0340 U	0.550 U	**0.300 NJ**	0.0350 U	0.0340 U	--	--	--	--	--
Diesel Range Hydrocarbons	mg/kg	-	-	-	**20.5 JT**	**12.0 J**	**1.90 J**	**600 J**	**72.0 JT**	**1,500 J**	**8.35 JT**	--	--	--	--	--
Diesel Range Hydrocarbons (silica gel treated)	mg/kg	-	-	-	12.0 UT	8.30 U	**1.60 J**	**450 J**	**28.5 JT**	**1,200 J**	**4.09 JT**	--	--	--	--	--
Residual Range Hydrocarbons	mg/kg	-	-	-	**67.5 JT**	**56.0 J**	**5.20 J**	**810 J**	**130 JT**	**550 J**	**18.5 JT**	--	--	--	--	--
Residual Range Hydrocarbons (silica gel treated)	mg/kg	-	-	-	**30.0 T**	24.0 U	**3.70 J**	**440 J**	**40.2 JT**	**200 J**	**12.4 JT**	--	--	--	--	--
Total Petroleum Hydrocarbons	mg/kg	-	-	-	**88.0 JA**	**68.0 JA**	**7.10 JA**	**1,410 JA**	**202 JA**	**2,050 JA**	**26.9 JA**	--	--	--	--	--
Total Petroleum Hydrocarbons (silica gel treated)	mg/kg	-	-	-	**30.0 A**	24.0 UA	**5.30 JA**	**890 JA**	**68.7 JA**	**1,400 JA**	**16.5 JA**	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/kg	0.710 U	0.770 U	0.780 U	0.310 U	0.330 U	0.280 U	1.70 U	1.50 U	0.420 U	0.250 U	--	--	--	--	--
2,3,4,6;2,3,5,6-Tetrachlorophenol coelution	ug/kg	0.440 U	0.480 U	0.490 U	-	-	-	-	-	-	-	--	20,000	--	--	--
2,3,5,6-Tetrachlorophenol	ug/kg	-	-	-	0.250 U	0.270 U	0.260 U	0.380 U	**1.40 NJ**	0.340 U	0.210 U	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	0.360 U	0.390 U	0.390 U	0.790 U	0.850 U	6.50 U	1.30 U	0.860 U	1.10 U	0.660 U	4,000	9,000	--	--	--
2,4,6-Trichlorophenol	ug/kg	0.440 U	0.480 U	0.490 U	0.160 U	0.170 U	0.340 U	0.250 U	0.180 U	0.220 U	0.140 U	10,000	10,000	--	--	--
2,4-Dichlorophenol	ug/kg	2.20 U	2.40 U	2.50 U	1.00 U	1.00 U	1.00 U	12.0 U	1.00 U	1.10 U	1.00 U	20,000	--	--	--	--

Addendum 1 Table 1. Sediment Analytical Results Near Alder Creek Mill Site
Portland Harbor RI Dataset

Analytes	Units	Sample Concentrations										Soil Screening DEQ Level II SLVs [1]				Soil Background Concentration[2]
		LW2-B005	LW2-G037	LW2-G045	LW3-MC006	LW3-MC006	LW3-MC006	LW3-MC009	LW3-MG006	LW3-MG009	LW3-MG010					
		Surface	Surface	Surface	Subsurface (30-110 cm)	Subsurface (110-196 cm)	Subsurface (196-264 cm)	Subsurface (30-111 cm)	Surface	Surface	Surface	Plants	Inverts	Birds	Mammals	
2,4-Dimethylphenol	ug/kg	6.80 U	7.30 U	7.40 U	**R**	**R**	5.50 U	**R**	5.50 UJ	5.60 U	5.50 U	20,000	--	--	--	--
2,4-Dinitrophenol	ug/kg	44.0 U	48.0 U	49.0 U	17.0 UJ	17.0 U	17.0 U	190 U	17.0 U	18.0 U	17.0 U	20,000	--	--	--	--
2-Chlorophenol	ug/kg	2.10 U	2.30 U	2.30 U	2.00 U	2.00 U	2.00 U	23.0 U	2.00 U	2.10 U	2.00 U	60,000	--	--	--	--
2-Methylphenol	ug/kg	4.20 U	4.50 U	4.60 U	1.50 U	1.50 U	1.50 U	17.0 U	1.50 U	1.60 U	1.50 U	50,000	--	--	16,000,000	--
2-Nitrophenol	ug/kg	3.20 U	3.50 U	3.50 U	1.50 U	1.50 U	1.50 U	17.0 U	1.50 U	1.60 U	1.50 U	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	2.10 U	2.30 U	2.30 U	1.40 UJ	1.40 U	1.40 U	16.0 U	1.40 U	1.50 U	1.40 U	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	2.60 U	2.80 U	2.90 U	1.40 U	1.40 U	1.40 U	16.0 U	1.40 U	1.50 U	1.40 U	--	--	--	--	--
4-Methylphenol	ug/kg	3.60 U	3.90 U	3.90 U	1.50 U	**2.10 J**	1.50 U	**56.0 J**	**4.50 J**	**5.80 J**	**2.00 J**	--	--	--	--	--
4-Nitrophenol	ug/kg	37.0 U	40.0 U	41.0 U	18.0 U	18.0 U	18.0 U	210 U	18.0 U	19.0 U	18.0 U	10,000	7,000	--	--	--
Pentachlorophenol	ug/kg	0.480 U	0.520 U	0.530 U	0.230 U	0.250 U	1.70 U	9.70 U	**0.750 J**	2.30 U	0.190 U	3,000	4,000	--	30,000	--
Phenol	ug/kg	2.40 U	2.50 U	**8.70 J**	2.00 U	2.00 U	2.00 U	**89.0 J**	2.00 U	2.10 U	**5.10 J**	70,000	30,000	--	--	--
Bis(2-ethylhexyl) phthalate	ug/kg	14.0 U	8.80 U	2.30 U	**9.80 J**	7.00 U	**7.60 J**	**110 J**	**14.0 J**	**71.0**	7.00 U	--	--	4,500	1,020,000	--
Butylbenzyl phthalate	ug/kg	1.90 U	2.00 U	2.10 U	3.20 U	3.20 U	3.20 U	36.0 U	**9.00 J**	3.30 U	3.20 U	--	--	--	--	--
Dibutyl phthalate	ug/kg	3.20 U	3.50 U	3.50 U	**13.0**	**11.0**	7.90 U	89.0 U	**28.0**	**16.0**	**8.10 J**	200,000	--	450	30,000,000	--
Diethyl phthalate	ug/kg	4.30 U	4.60 U	4.70 U	**1.90 J**	**2.10 J**	**1.30 J**	15.0 U	**4.10 J**	**2.60 J**	**2.00 J**	100,000	--	--	250,000,000	--
Dimethyl phthalate	ug/kg	2.20 U	2.40 U	2.50 U	1.00 U	1.00 U	1.00 U	12.0 U	1.00 U	1.10 U	1.00 U	--	200,000	--	--	--
Di-n-octyl phthalate	ug/kg	1.50 U	1.60 U	1.70 U	1.70 U	1.70 U	1.70 U	19.0 U	1.70 U	1.80 U	1.70 U	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/kg	1.90 U	2.00 U	2.10 U	2.60 U	2.60 U	2.60 U	30.0 U	2.60 U	2.70 U	2.60 U	--	20,000	--	--	--
1,2-Dichlorobenzene	ug/kg	1.60 U	1.80 U	1.80 U	2.90 U	2.90 U	2.90 U	33.0 U	2.90 U	3.00 U	2.90 U	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg	2.00 U	2.10 U	2.20 U	3.00 U	3.00 U	3.00 U	34.0 U	3.00 U	3.10 U	3.00 U	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg	2.40 U	2.50 U	2.60 U	2.90 U	2.90 U	2.90 U	33.0 U	2.90 U	3.00 U	2.90 U	--	20,000	--	--	--
2,4-Dinitrotoluene	ug/kg	3.50 U	3.70 U	3.80 U	1.50 U	**17.0**	1.50 U	17.0 U	1.50 U	1.60 U	1.50 U	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg	3.50 U	3.70 U	3.80 U	2.00 U	2.00 U	2.00 U	23.0 U	2.00 U	2.10 U	2.00 U	--	--	--	--	--
2-Chloronaphthalene	ug/kg	4.40 U	4.80 U	4.90 U	1.60 U	1.60 U	1.60 U	18.0 U	1.60 U	1.70 U	1.60 U	--	--	--	--	--
2-Nitroaniline	ug/kg	3.30 U	3.60 U	3.70 U	3.20 U	3.20 U	3.20 U	36.0 U	3.20 U	3.30 U	3.20 U	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	4.60 U	4.90 U	5.00 U	**R**	3.70 U	3.70 U	42.0 U	**R**	3.80 U	3.70 U	--	--	--	--	--
3-Nitroaniline	ug/kg	3.20 U	3.50 U	3.50 U	2.50 U	2.50 U	2.50 U	28.0 U	2.50 U	2.60 U	2.50 U	70,000	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	1.80 U	1.90 U	1.90 U	1.60 U	1.60 U	1.60 U	18.0 U	1.60 U	1.70 U	1.60 U	--	--	--	--	--
4-Chloroaniline	ug/kg	2.60 U	2.80 U	2.90 U	1.90 UJ	1.90 U	1.90 U	22.0 U	1.90 U	2.00 U	1.90 U	40,000	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	2.50 U	2.70 U	2.70 U	1.40 U	1.40 U	1.40 U	16.0 U	1.40 U	1.50 U	1.40 U	--	--	--	--	--
4-Nitroaniline	ug/kg	4.20 U	4.50 U	4.60 U	1.80 U	1.80 U	1.80 U	21.0 U	1.80 U	1.90 U	1.80 U	40,000	--	--	--	--
Aniline	ug/kg	1.90 U	2.00 U	2.10 U	**R**	1.50 U	1.50 U	17.0 U	**R**	1.60 U	1.50 U	200,000	--	--	--	--
Azobenzene	ug/kg	3.00 U	3.20 U	3.30 U	1.10 UJ	1.10 U	1.10 U	13.0 U	1.10 U	1.20 U	1.10 U	--	--	--	--	--
Benzoic acid	ug/kg	120 U	130 U	130 U	96.0 UJ	96.0 U	**R**	1,100 U	96.0 U	**99.0 J**	96.0 U	--	--	--	--	--
Benzyl alcohol	ug/kg	4.60 U	4.90 U	5.00 U	**6.80 J**	**3.90 J**	2.10 U	24.0 U	**3.50 J**	**5.50 J**	2.10 U	--	--	--	--	--
Bis(2-chloroethoxy) methane	ug/kg	1.60 U	1.80 U	1.80 U	1.50 U	1.50 U	1.50 U	17.0 U	1.50 U	1.60 U	1.50 U	--	--	--	--	--
Bis(2-chloroethyl) ether	ug/kg	3.00 U	3.20 U	3.30 U	1.90 U	1.90 U	1.90 U	22.0 U	1.90 U	2.00 U	1.90 U	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/kg	1.50 U	1.60 U	1.70 U	2.60 U	2.60 U	2.60 U	30.0 U	2.60 U	2.70 U	2.60 U	--	--	--	--	--
Carbazole	ug/kg	1.60 U	1.80 U	1.80 U	1.30 U	1.30 U	1.30 U	**36.0 J**	**6.70 J**	**21.0**	1.30 U	--	--	--	--	--
Dibenzofuran	ug/kg	**0.790 J**	**0.340 J**	**1.30 J**	**3.90**	**3.50**	0.590 U	**62.0**	**4.00**	**8.40**	0.590 U	--	--	--	2.00	--
Hexachlorobenzene	ug/kg	2.60 UT	2.80 U	2.90 U	0.0680 U	0.0680 U	0.0680 U	**0.760 J**	**0.200 J**	**0.440**	0.0680 U	--	1,000,000	--	--	--
Hexachlorobutadiene	ug/kg	0.0332 UT	0.0359 U	0.0356 U	0.170 U	0.140 U	0.140 U	0.780 U	0.140 U	2.60 U	0.140 U	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	19.0 U	20.0 U	21.0 U	29.0 U	29.0 U	29.0 U	330 U	29.0 U	30.0 U	29.0 U	10,000	--	--	--	--
Hexachloroethane	ug/kg	0.0490 UJT	0.0531 UJ	0.0527 UJ	0.160 U	0.160 U	0.170 U	0.900 U	0.160 U	0.170 U	0.160 U	--	--	--	--	--
Isophorone	ug/kg	2.00 U	2.10 U	2.20 U	1.00 U	1.00 U	1.00 U	12.0 U	1.00 U	1.10 U	1.00 U	--	--	--	--	--
Nitrobenzene	ug/kg	2.50 U	2.70 U	2.70 U	2.20 U	2.20 U	2.20 U	25.0 U	2.20 U	2.30 U	2.20 U	8,000	40,000	--	--	--
N-Nitrosodimethylamine	ug/kg	7.50 U	8.00 U	8.20 UJ	6.10 UJ	6.10 U	6.10 U	69.0 U	6.10 UJ	6.20 U	6.10 U	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	2.70 U	2.90 U	3.00 U	1.60 U	1.60 U	1.60 U	18.0 U	1.60 U	1.70 U	1.60 U	--	20,000	--	--	--
N-Nitrosodipropylamine	ug/kg	4.00 U	4.20 U	4.30 U	2.40 U	2.40 U	2.40 U	27.0 U	2.40 U	2.50 U	2.40 U	--	--	--	--	--
Aluminum	mg/kg	**14,600**	**13,100**	**13,800 T**	**21,700 T**	**19,100**	**10,500**	**24,600**	**16,500 T**	**23,300**	**8,250**	50.0	600	450	107	98000
Antimony	mg/kg	0.180 UJ	0.0900 UJ	**0.180 JT**	**0.145 JT**	**0.170 J**	**0.0300 J**	**0.230 J**	**0.260 JT**	**0.330 J**	**0.230 J**	5.00	--	--	15.0	4.0
Arsenic	mg/kg	**3.26**	**2.91 J**	**6.50 T**	**2.79 JT**	**2.11**	**1.73**	**3.55**	**4.40 T**	**3.65**	**3.48**	10.0	60.0	10.0	29.0	7.0
Cadmium	mg/kg	**0.120**	**0.0880**	**0.132 T**	**0.136 T**	**0.110**	**0.0830 J**	**0.460**	**0.167 T**	**0.184**	0.0250 U	4.00	20.0	6.00	125	1.0
Chromium	mg/kg	**19.6**	**15.3**	**22.8 T**	**23.4 T**	**18.6**	**13.3**	**27.6**	**17.0 T**	**20.1**	**8.99**	--	--	--	410	42
Copper	mg/kg	**14.4 J**	**14.3**	**20.3 T**	**30.7 T**	**25.6**	**14.0**	**41.8**	**17.2 T**	**22.3**	**4.37**	100	50.0	190	390	36
Lead	mg/kg	**11.9**	**4.98**	**30.2 JT**	**9.72 T**	**7.73**	**4.42**	**31.2**	**8.50 T**	**9.90**	**2.20**	50.0	500	16.0	4,000	17
Mercury	mg/kg	**0.0420 T**	**0.0200**	**0.0600 T**	**0.0705 T**	**0.0680**	**0.0300 J**	**0.108**	**0.0435 T**	**0.0510**	**0.00700 J**	0.300	0.100	1.50	73.0	0.070
Nickel	mg/kg	**23.4**	**15.7 J**	**20.9 T**	**28.2 T**	**21.9**	**17.7**	**24.9**	**20.0 T**	**18.9**	**4.75**	30.0	200	320	625	38
Selenium	mg/kg	**0.0600 J**	0.0400 UJ	**0.0850 JT**	-	-	-	-	-	-	-	1.00	70.0	2.00	25.0	2.0
Silver	mg/kg	**0.0420**	**0.0350**	**0.0500 T**	**0.0900 T**	**0.0900**	**0.0700**	**0.260**	**0.0950 T**	**0.120**	**0.0400**	2.00	50.0	--	--	1.0
Zinc	mg/kg	**78.1**	**69.0**	**102 T**	**65.9 T**	**62.8**	**48.8**	**194**	**81.9 T**	**100**	**52.1**	50.0	200	60.0	20,000	86

Notes:

= The reported concentration exceeds both the lowest screening criterion and the background/clean fill concentration, if available.

-- = Criterion not available

bgs = below ground surface

bold = analyte detected above MDL.

A = The reported result is a total based on a a limited number of analytes

BaPEq = Benzo(a)pyrene equivalent

J = The sample result is an estimated concentration.

MDL = method detection limit

mg/kg = milligram per kilogram

ug/kg = microgram per kilogram

N = The analyte was tentatively identified in the sample.

R = The analysis for the analyte was completed, but the result was rejected based on a data quality review.

T = The reported result is a result of totaling constituent analytes

U = The analyte was not detected at or above the MDL.

UJ = The analyte was not detected. The reported sample quantification limit is an estimate.

[1]DEQ, 2001. Guidance for Ecological Risk Assessment, Level II Screening Benchmark Values. Oregon Department of Environmental Quality, Waste Management and Cleanup Division. December.

[2]DEQ 2002. Default Background Concentrations for Metals, DEQ Toxicology Workgroup Memo. Except aluminum, which is sourced from the Preliminary Clean Fill Table provided via email from Bill Mason of DEQ, 6/21/12. A background concentration was not available for aluminum.

Attachment A

URS

Map of Excavation within State Lands

NORTH 0 150' 300'

WILDLANDS

Alder Creek Restoration Project

Attachment A

Excavation within State Lands
August 6, 2012

Attachment B

Maps 2.2-1c, 2.2-1d, and 2.2-2d from the Draft Final Portland Harbor RI Report

Surface Sediment Station

Sample Year, Task

- 2008, WLLASE08
- 2006-2008, LWG03
- 2004-2005, LWG02
- 2002, LWG01
- 2007, WLCT4G06
- 2007, WLFLH07
- 2006, WLCT4G06
- 2006, WLCBPE06
- 2005, WLCDRD05
- 2004, WLCGNG03
- 2004, WLCEMH04
- 2004, WLCZDH04
- 2004, WLCDRI03
- 2004, WLCT4C04
- 2003, WLCGNG03
- 2003, WLCEMH04
- 2002, WLCMCB02
- 2002, WLCWTG02
- 2002, WLCOFJ02
- 2002, WLCGXB02
- 2002, WLCOFH02
- 2002, WLCMRI02
- 2001, WLLRSI01
- 2001, WLLRSH01
- 2001, WLCMBA01
- 2001, WLCGSD01
- 2001, WLCCPF01
- 2000, WLCGAL00
- 2000, WLCGAF00
- 2000, WLCT1F00
- 2000, WLCOSJ00
- 2000, WLCMFH00
- 2000, WLCAYH00
- 1999, WLCMBJ99
- 1999, WLCRIL99
- 1999, WLCRIJ99
- 1999, WLR1199
- 1999, WLCRIV99
- 1999, WLRELF99
- 1999, WLCGXV99
- 1998, WRD&M98
- 1998, WLCITH98
- 1998, WLRWTF98
- 1998, PSYSEA98
- 1998, WLCT4J98
- 1998, WLCT0I98
- 1998, PSYD&M97
- 1998, WLRELF99
- 1997, PSYD&M97
- 1997, WLCASF97
- 1997, WR-WSI98
- 1997, RIEDEL97
- 1997, WLR0797
- 1997, WLCZDI00

Note: Additional information on these tasks can be found in Appendix A1

RM 2

RM 3

DG13 DG01 DG02 G004 BT001 B002 RB01 RB02 G600 G007-1 G007-2 G009 G010 G011 RB03 RB06 RB04 RB13 RB05 G019 G015 G013 G017 G006 G602 G016 B004 RB08 RB10 RB07 RB09 BT002 02R015 02R001 G020 G021 G604 G603 G025 G024 G022 G026 G605 RB11 RB12 G027 G028 G030 G608 G607 B006 G031 G033 G034 G038 G035 G032 G609 G039 G040 G042 G043 G044-1 G044-2 G046 03R001 03R041 G050 G051 G053 BT004 G055 WR-PG-03 WR-PG-04 G041 G036 G606 G008 G014 G018 G005 G601 G002 WR-PG-01 WR-PG-02 WR-BC-09 WR-BC-10 G001 D1-1 D1-2 G003 G012 GCA02W G023-1 G023-2 B001 G029 D2 B003 G037 B005 G045 MG010

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LWG Lower Willamette Group

FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS .
Channel & River miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 150 300 450 600 750 Feet

Map Features

- River Miles
- Navigation Channel
- West/East River Zones
- River Edge +13 ft NAVD

Outfalls
- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Freeways
- Arterials

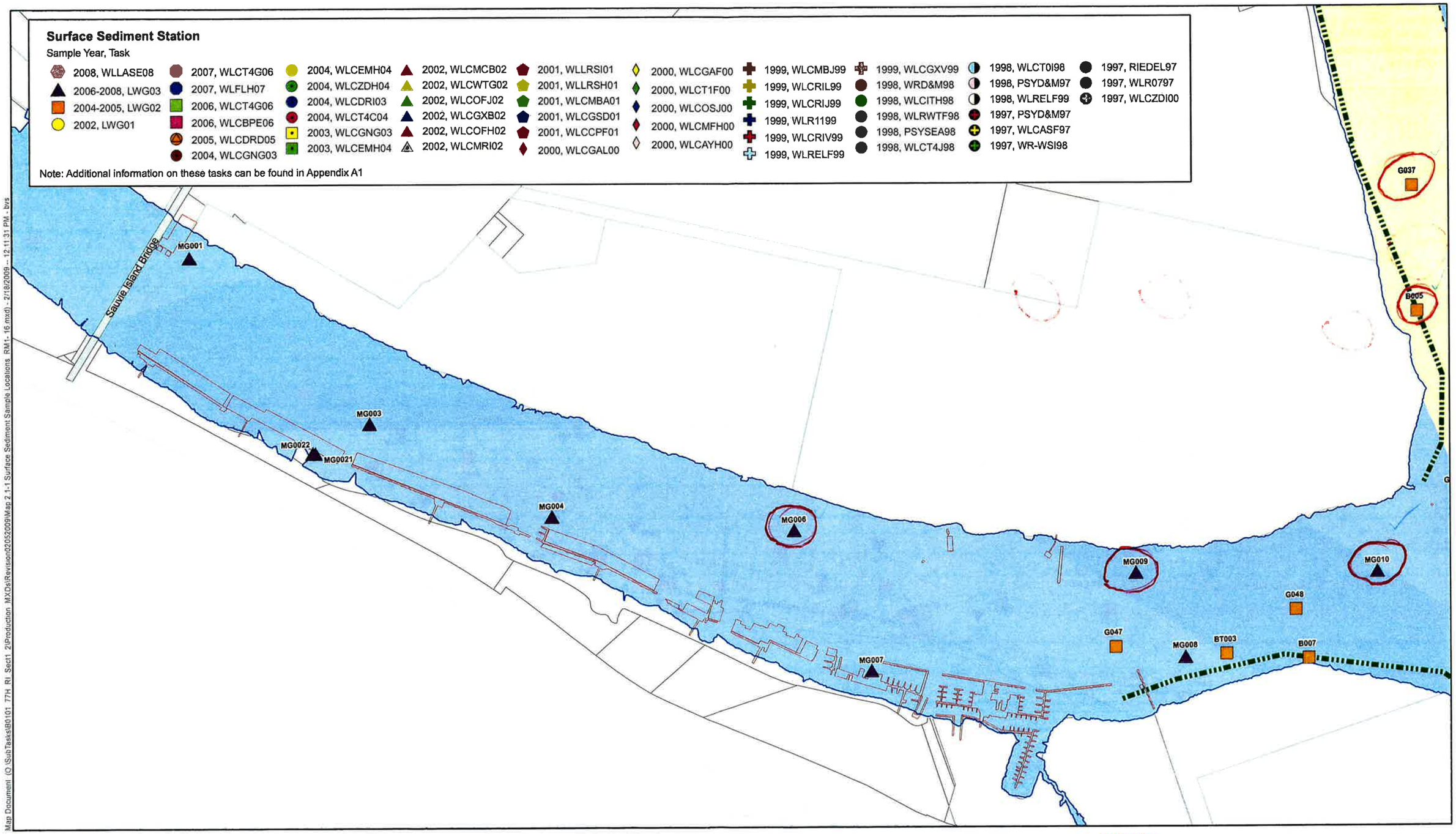
- Bioassay Sampling Locations
- Dredge and Cap Stations
- Capping Areas
- Dredging Areas

- Upland ECSI Sites (2008)
- Waterfront Taxlots
- Shorebird Sample Transect
- Round 1 Beach Sample Collection Area

DRAFT
DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Map 2.2-1c
Portland Harbor RI/FS
Remedial Investigation Report
Surface Sediment Sampling Locations
River Mile 02 to 03

Map Document: (O:\SubTasks\B0101_7TH_RI_Sect1_2\Production_MXDs\Revision02052009\Map 2.1-1 Surface Sediment Sample Locations_RM1-16.mxd) - 2/18/2009 - 12:11:31 PM - bvs



Map Document: (O:\Sub\Tasks\B0101_77H_RI_Sect1_2\Production_MXDs\Revision02052009\Map 2.1-1 Surface Sediment Sample Locations_RM1-16.mxd) - 2/18/2009 -- 12:11:31 PM - bvs

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LWG Lower Willamette Group

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS.
Channel & River miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 150 300 450 600 750 Feet

Map Features
- River Miles
- Navigation Channel
- West/East River Zones
- River Edge +13 ft NAVD

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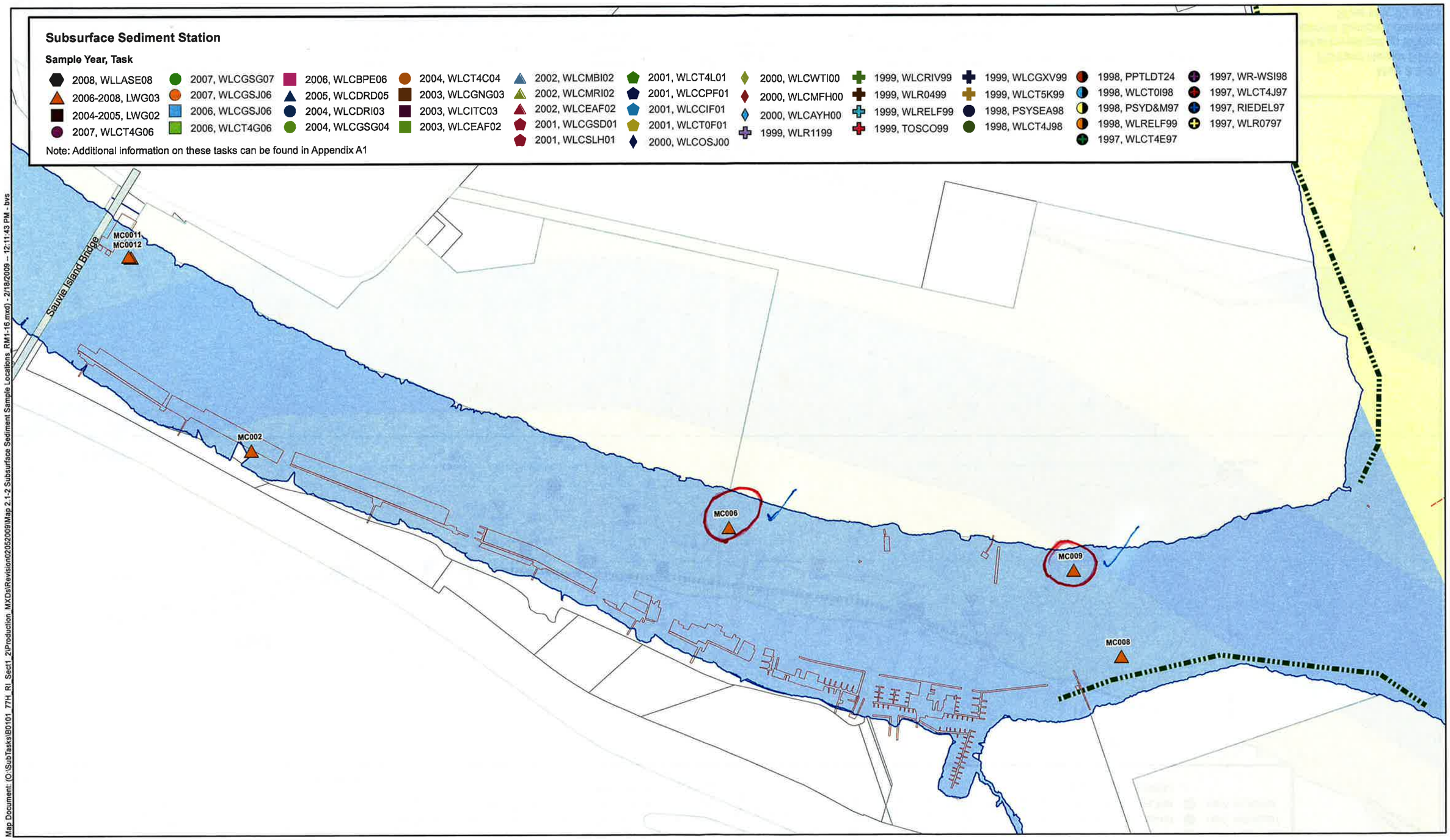
Map 2.2-1d
Portland Harbor RI/FS
Remedial Investigation Report
Surface Sediment Sampling Locations
River Mile 03 –Multnomah Channel

Subsurface Sediment Station

Sample Year, Task

- 2008, WLLASE08
- 2006-2008, LWG03
- 2004-2005, LWG02
- 2007, WLCT4G06
- 2007, WLCGSG07
- 2007, WLCGSJ06
- 2006, WLCGSJ06
- 2006, WLCT4G06
- 2006, WLCBPE06
- 2005, WLCDRD05
- 2004, WLCDRI03
- 2004, WLCGSG04
- 2004, WLCT4C04
- 2003, WLCGNG03
- 2003, WLCITC03
- 2003, WLCEAF02
- 2002, WLCMBI02
- 2002, WLCMRI02
- 2002, WLCEAF02
- 2001, WLCGSD01
- 2001, WLCSLH01
- 2001, WLCT4L01
- 2001, WLCCPF01
- 2001, WLCCIF01
- 2001, WLCT0F01
- 2000, WLCOSJ00
- 2000, WLCWTI00
- 2000, WLCMFH00
- 2000, WLCAYH00
- 1999, WLR1199
- 1999, WLCRIV99
- 1999, WLR0499
- 1999, WLRELF99
- 1999, TOSCO99
- 1999, WLCGXV99
- 1999, WLCT5K99
- 1998, PSYSEA98
- 1998, WLCT4J98
- 1998, PPTLDT24
- 1998, WLCT0I98
- 1998, PSYD&M97
- 1998, WLRELF99
- 1997, WLCT4E97
- 1997, WR-WSI98
- 1997, WLCT4J97
- 1997, RIEDEL97
- 1997, WLR0797

Note: Additional information on these tasks can be found in Appendix A1



Map Document: (O:\SubTasks\B0101_77H_RI_Sect1_2\Production_MXDs\Revision\20052009\Map 2.1-2 Subsurface Sediment Sample Locations_RM1-16.mxd) - 2/18/2009 -- 12:11:43 PM - bvs

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LWG Lower Willamette Group

N

0 150 300 450 600 750 Feet

FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS .
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Bathymetric Information: David Evans and Associates, Inc.

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- River Miles
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- Waterfront Taxlots
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- Round 1 Beach Sample Collection Area

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Map 2.2-2d
Portland Harbor RI/FS
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Subsurface Sediment Sample Locations
River Mile 03 -Multnomah Channel