

SUBJECT: REVISED DIOXIN DETERMINATION AND REGENCY DETERMINATION ON THE SUITABILITY OF PROPOSED DREDGED MATERIAL FROM THE PUYALLUP TRIBAL TERMINAL & SSA CONTAINERS PROJECT, BLAIR WATERWAY (Permit #NWS-2009-906), COMMENCEMENT BAY, TACOMA, WASHINGTON. EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR OPEN-WATER DISPOSAL AT THE COMMENCEMENT BAY OPEN WATER SITE OR FOR IN-WATER BENEFICIAL USE.

- 1. Introduction.** This memorandum documents a revision of the suitability of the proposed project for open water disposal. It reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Environmental Protection Agency, and Washington Departments of Ecology and Natural Resources) regarding the suitability of approximately 1.75 million cubic yards (cy) of dredged material from the Puyallup Tribal Terminal development project. This revised determination supersedes the [determination issued by the Dredge Material Management Office \(DMMO\) on April 18, 2009](#).
- 2. Project.** The project, proposed by the Puyallup Tribe and SSA Containers, includes a cutback of a portion of the eastern shoreline of the Blair Waterway to facilitate infrastructure improvement and increase safety and capacity for shipping. Widening of the Blair would occur as a cutback of the eastern shoreline parallel to the existing shoreline for a distance of approximately 3,000 feet (Figure 1). The dredging project is proposed to result in a ship berth of -51 ft. MLLW. Total proposed dredging volume is approximately 1,750,000 cubic yards.

Two areas within the proposed project area have not been included in this DMMP characterization, based on the known presence of contaminated sediment, concrete debris, and institutional control issues. These portions are 1) the area encompassing the Lincoln Avenue ditches (the former ditch and long segment) and 2) the Graving Dock. These areas, including a 10-foot buffer on either side of the ditches and the dock, were not considered in the 2009 suitability determination and are not included here. The material associated with the ditches and dock, approximately 214,600 cy, will be isolated from the rest of the cutback material for upland use and/or disposal.

- 3. Previous Suitability Determination.** The 2009 suitability determination found that 1,452,355 cubic yards were suitable for unconfined open-water disposal or beneficial use, and a total of 83,045 cubic yards were unsuitable. The remaining volume of material (214,600 cy) is within the known contaminated areas described above. The difference between suitable and unsuitable material in this project was entirely the dioxin/furan toxic equivalency quotient (TEQ) concentrations found in the samples (WHO 2005). No other chemicals of concern were detected or undetected above DMMP screening levels.

For the initial project suitability determination, the DMMP used the interim dioxin guidelines in effect between February 2007 and December 2010. For non-dispersive sites like the Commencement Bay site, those guidelines were based on a comparison of dioxin TEQs in test sediments to disposal-site background. For Commencement Bay, that data was collected from perimeter, transect, and benchmark locations (i.e. not from any previously-disposed material) as part of regular DMMP site monitoring. The interim guidelines stated that dioxin concentrations in any given DMMU could not exceed the site maximum (5.2 ng/kg dry wt. TEQ at the Commencement Bay site), and volume-weighted average dioxin concentrations (2.4 ng/kg dry wt. TEQ at the Commencement Bay site) could not exceed the mean disposal site concentration. Composites H1 (consisting of DMMUs 1, 2, 3 and 4) and H6 (consisting of DMMUs 17B and 17C) both exceeded the site maximum TEQ of 5.2 (Table 1).

Table 1. TEQ and volume-weighted average calculations for Puyallup Tribal Terminal

Composite (DMMUs included)	Volume (CY)	TCDD/F TEQ (ND=1/2 RL) ng/kg dry wt.	Product (Vol x TEQ)	Volume Weighted Average (ng/kg/volume)
H1—DMMUs 1, 2, 3, and 4.	61,083	8.16	498,159	
H2—DMMUs 5, 6, 7, and 8.	59,207	1.90	112,204	
H3—DMMUs 9, 10, 11, and 12.	65,879	1.23	81,140	
H4—DMMUs 14, 15, and 16.	43,158	0.40	17,401	
H5—DMMUs 14B, 17, and 18.	42,330	2.55	107,875	
H6—DMMUs 17B & 17C	21,962	7.22	158,603	
H6—DMMU 20	14,853	0.16	2,376	
H7—DMMUs 17D, 19, and 21.	43,694	0.45	19,657	
H8—DMMU 22.	24,357	0.16	3,800	
No-test Native	1,158,877	0.16	185,420	
2009 Project Total: Suitable + no-test Native (does not include H1 & H6 as suitable)	1,452,355		529,875	0.36
2014 Project Total: Suitable + no-test Native (includes H1 & H6 as suitable)	1,535,400		1,186,636	0.77

Notes:

- For no-test native material: PCDD/F TEQ for H8 used to estimate volume weighted concentrations
- Bolded values exceeded previous Commencement Bay site maximum level. They do not exceed the present dioxin guideline DMMU maximum of 10 TEQ.

4. **Dioxin Re-Evaluation.** In December of 2010, subsequent to the initial determination, the DMMP agencies updated open-water disposal guidelines for evaluation of dioxin in proposed dredged material. The updated guidelines were based on a three-year process of data collection, technical workshops and public coordination. This process determined that four ng/kg dry wt. TEQ would be the management objective for surface sediments within the boundary of all Puget Sound non-dispersive disposal sites. To achieve this, any DMMU with a dioxin TEQ of ≤ 4 ng/kg dry wt. would be suitable for open water disposal. DMMUs with dioxin concentrations above 4 but below 10 ng/kg dry wt. TEQ could be suitable for open-water disposal as long as the volume-weighted average concentration of dioxins in material from the entire dredging project does not exceed the Disposal Site Management Objective of 4 ng/kg dry wt. TEQ.

All material previously tested showed TEQs < 10 ng/kg dry wt. The volume-weighted average of all proposed dredged material is 0.77 TEQ, well below the 4 TEQ management site objective. Thus with current DMMP dioxin/furan guidelines applied to the dioxin/furan concentrations from this project, all material previously considered unsuitable (83,045 cubic yards) can now be considered suitable for open-water disposal or beneficial use.

5. **Revised Suitability Determination.** This determination supersedes the 2009 suitability determination, which found 83,045 cy in 6 DMMU unsuitable. Based on the combined information from all chemistry testing results as evaluated by DMMP guidelines and best professional judgment, all 1,535,400 cubic yards of proposed dredge material is suitable for unconfined open water disposal or in-water beneficial use.

6. **Recency.** The April 18, 2009 Suitability Determination included a project recency range of 5 to 7 years, based on the “moderate” rank under which testing was conducted. This range corresponds to a recency expiration between August 2013 and August 2015.

Development of the Puyallup Tribal Terminal was delayed from the originally anticipated construction date due to various factors, including the general economic downturn. The project is now moving forward again, with in-water construction anticipated to begin during the 2015 construction window. SSA has requested that the recency for this project be extended for two years past the maximum 7 years under moderate-ranked project guidelines, to August 2017.

The following factors were considered when evaluating a recency extension for this project:

- There have been no known spill events or other changed conditions in the project area since the original suitability determination was issued.
- The project area has not undergone any site use or development activities since the original sampling event.
- The majority of the project dredge material includes shoreline cutback soils located above the mean high water mark that do not receive sediment deposition, with expected stable hydrodynamic and chemical conditions.

Due to the above factors, the DMMP finds that the data collected for the previous suitability determination will be sufficient to allow a recency extension to August, 2017.

This recency extension is contingent upon there being no significant changes in the sediment quality at the project site between the date of this memorandum and the time of dredging.

7. **Best Management Practices and Permitting.** All material identified in the former Lincoln Avenue Ditches and Graving Dock areas needs to be removed and handled separately from dredged material. Construction methods used to insure this separation must be described in the Dredging and Disposal Quality Control Plan submitted to the agencies prior to the pre-dredge meeting (see DMMP 2013).

To insure that dioxin levels at the Commencement Bay Site do not exceed the Disposal Site Management Objective of 4 ng/kg dry wt. TEQ, DMMUs with dioxin concentrations above 4 TEQ (DMMUs 1, 2, 3, 4, 17B and 17C) should be placed first, or underneath material with TEQs below 4. Material from these DMMUs should be covered as soon as possible after placement, and not left exposed between dredging seasons.

This determination does not constitute final agency approval of the project. Cleanup and dredging plans for this project must be completed as part of the final project approval process. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under Section 404(b)(1) of the Clean Water Act.

8. References.

DMMP 2013. Dredged Material Evaluation and Disposal Procedures (User Manual). Prepared by the Seattle District Dredged Material Management Office for the DMMP, July 2013.

<http://www.nws.usace.army.mil/Missions/CivilWorks/Dredging/UsersManual.aspx>

Floyd-Snyder 2009. Shoreline Cutback Characterization Report for the Puyallup Tribal Terminal, East Blair Waterway, Tacoma, Washington. Prepared by SSA Containers, Inc., January 2009.

PSDDA 1988. Evaluation Procedures Technical Appendix (EPTA) – Phase I (Central Puget Sound).

SMARM 1991. Modifications to Sampling Requirements For Deep Native Sediments. Clarification Paper prepared by David Fox (U.S. Army Corps of Engineers).

World Health Organization (WHO) 2005. Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. ToxSci Advance Access published online July 7, 2006 at http://www.who.int/ipcs/assessment/tef_update/en/

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Concur:

Signed copy on file in the Seattle District, Corps of Engineers DMMO office.

Date

Lauran Cole Warner, Seattle District Corps of Engineers

Date

Erika Hoffman, Environmental Protection Agency

Date

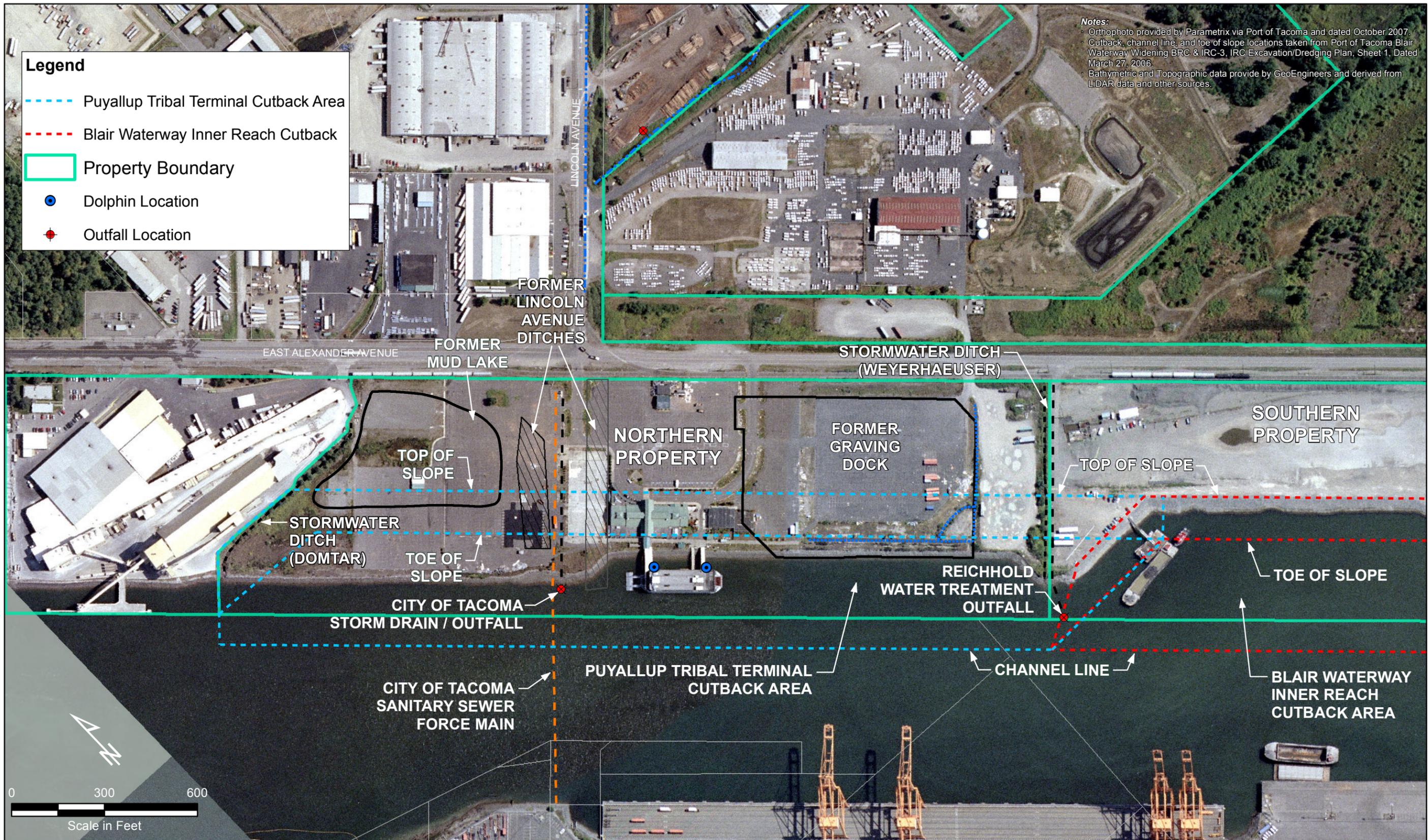
Laura Inouye, Washington Department of Ecology

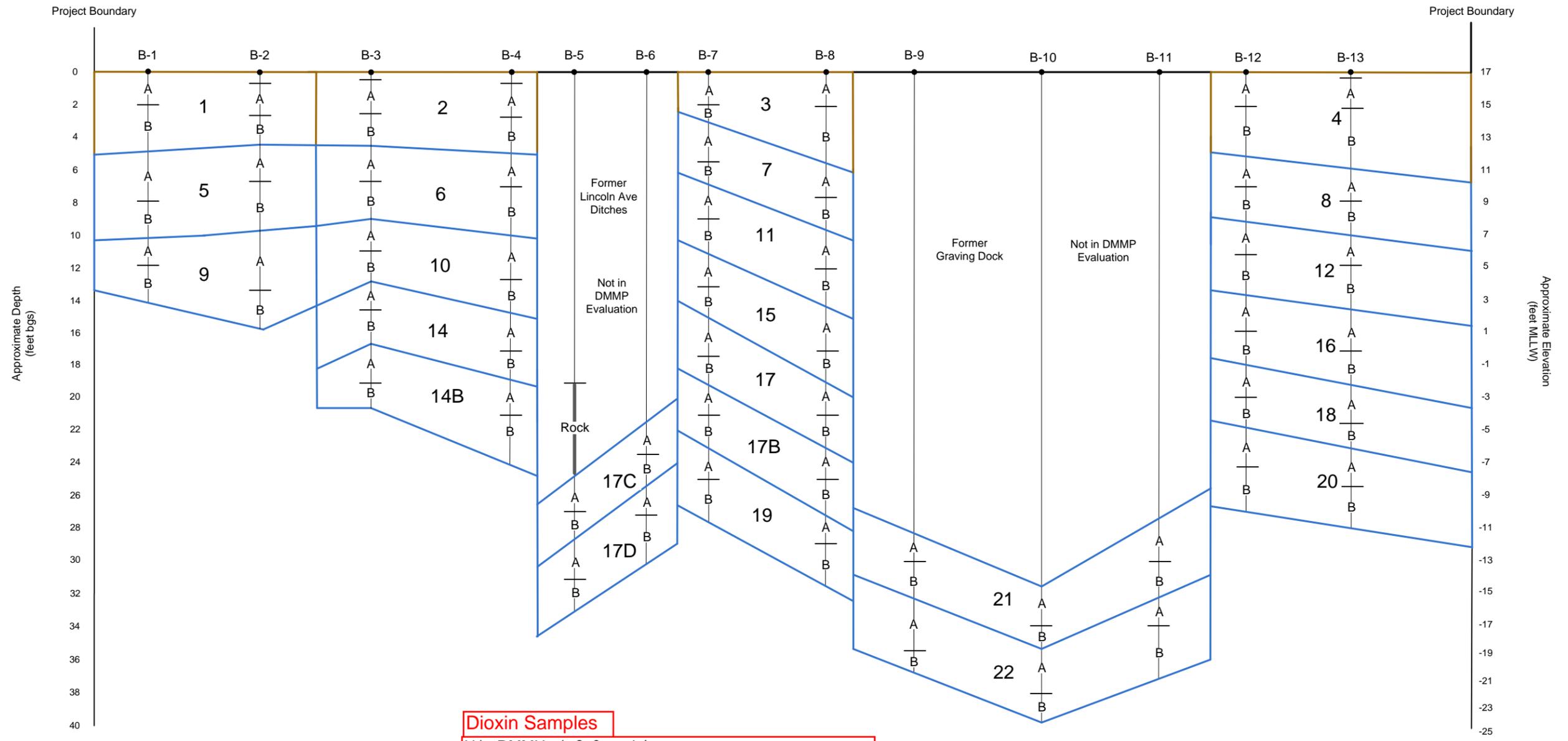
Date

Celia Barton, Washington Department of Natural Resources

Copies furnished:

DMMP Signatories
Corps Regulatory
Jessi Massingale, Floyd|Snider
Bill Sullivan, Puyallup Tribe
DMMO file





Notes:

Approximate Horizontal Scale 1 inch = 240 feet

- B-1 Boring location and designation
- Bgs Below ground surface
- DMMP Dredge Material Management Program
- DMMU Dredge Material Management Unit
- MLLW Mean Lower Low Water
- 1 Fill DMMU and DMMU designation
- 1 Native DMMU and DMMU designation
- $\begin{matrix} A \\ | \\ B \end{matrix}$ Subunit sample interval and designation

- Dioxin Samples**
- H1: DMMUs 1, 2, 3, and 4
 - H2: DMMUs 5, 6, 7, and 8
 - H3: DMMUs 9, 10, 11, and 12
 - H4: DMMUs 14, 15, and 16
 - H5: DMMUs 14B, 17, and 18
 - H6: DMMUs 17B and 17C
 - H6: DMMU 20 (reanalyzed separately)
 - H7: DMMUs 17D, 19, and 21
 - H8: DMMU 22



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**Shoreline Cutback Characterization
 Puyallup Tribal Terminal
 Tacoma, Washington**

Figure 2: Sampling Scheme