SAGE
GEOTECHNICAL

June 2, 2025

Transmitted via email to: brandon@themilestonecompanies.com

West Bay Development Group, LLC
P.O. Box 1376
Sumner, WA 98390

Attn: Mr. Brandon Smith

Re: Portadam® Feasibility Assessment
West Bay Yards Shoreline Restoration
Olympia, Washington
Sage Project No. 033001

Dear Mr. Smith:

In February and March 2025, the Washington State Department of Ecology (Ecology) provided review comments on the revised *West Bay Yards Draft Shoreline Restoration Design Report.* In its comments, Ecology recommends that a temporary cofferdam system, or a Portadam®, is considered as a feasible alternative to a temporary sheet pile wall cofferdam. Ecology cites the Irondale Iron and Steel Plant cleanup site as an example of a project in which a Portadam successfully replaced a temporary sheet pile wall cofferdam.

In accordance with Ecology's recommendations, Sage Geotechnical, LLC (Sage, project geotechnical engineer) evaluated the feasibility of a Portadam to the proposed shoreline restoration. Sage reviewed publicly available information regarding the Irondale Iron and Steel Plant site (Ecology, accessed May 26, 2025) as well as GeoEngineers' November 4, 2015, Cleanup Action and Site Restoration Completion Report. The Portadam was added during construction, as described below (GeoEngineers 2015).

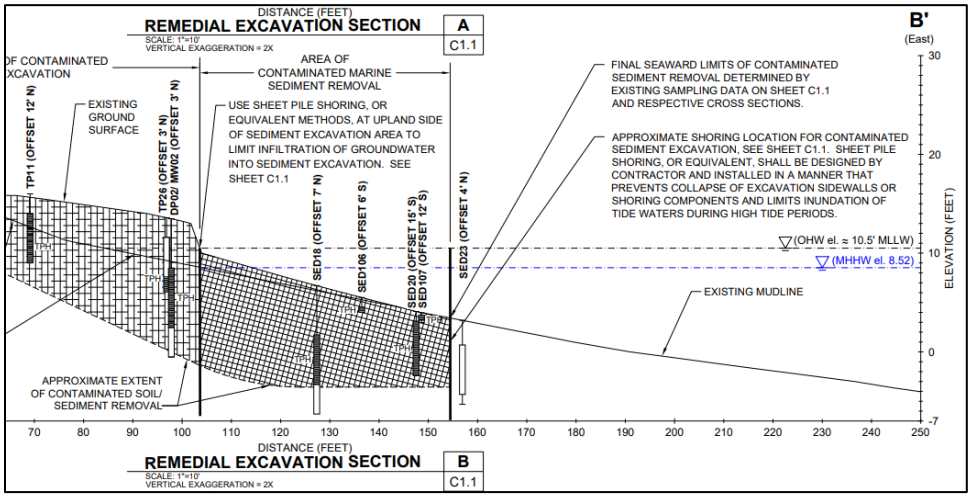
3.3.5. Portadam

The remediation contractor's (AEC) original shoring design, as outlined in their July 20, 2012 Excavation and Disposal Plan, for the removal of near-shore sediments called for the installation of sheet pile walls. AEC attempted to install 36 lineal feet of sheet piles on August 29 and August 30, 2012. These attempts were met with refusal; an impenetrable object was apparently encountered at depths of 8 to 10 feet below the mudline. Ecology approved the use of a Portadam shoring system on September 4, 2012. This alternate shoring design is outlined in AEC's September 5, 2012 Excavation and Disposal Plan (AEC 2012a). The Corps approved the use of a Portadam on September 5, 2012. WDFW had previously approved the use of a Portadam on August 15, 2012.

Portadam installed to complete nearshore sediment excavation

The Portadam was installed between September 10 and September 20, 2012 and was removed between October 8 and October 15, 2012.

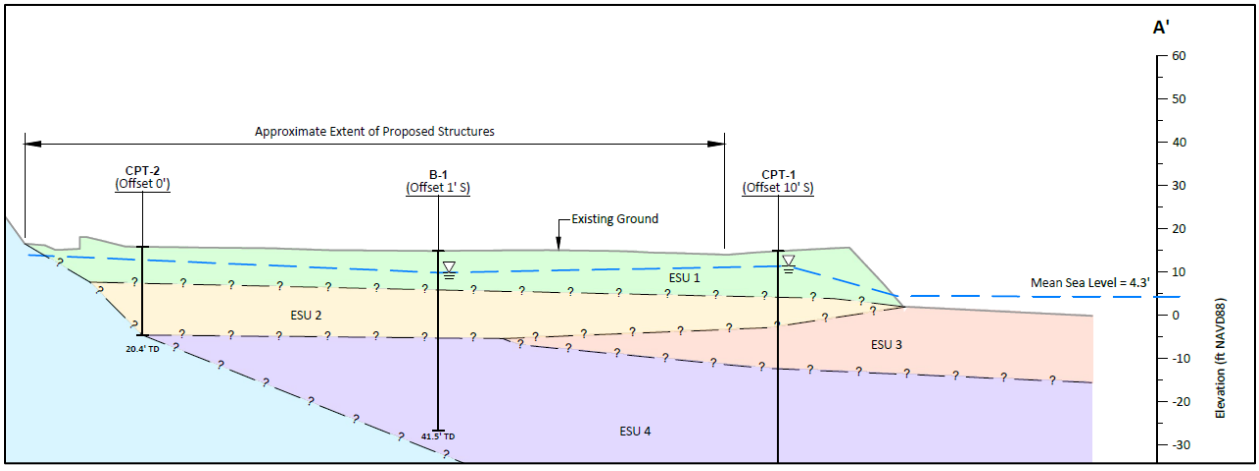
The Portadam described above replaced a contractor-designed sheet pile wall cofferdam. The excerpted plan sheet below shows topographic similarities between the West Bay Yards Shoreline Restoration project and the Irondale Iron and Steel Plant project. Both projects were designed to limit groundwater infiltration into shoreline construction excavations.



CONCLUSIONS

Sage concludes that Portadam construction is not feasible at West Bay Yards due to the presence of soft plastic/cohesive, fine-grained site soils (Engineering Stratigraphic Unit [ESU] 3). The approximate extent of ESU 3 soil is shown below (Landau 2020). The location of ESU 3 soils align with the location of where a Portadam would be constructed.

The estimated shear strength of the ESU 3 soils is as low as 0.2 tons per square foot. Additional loads, such as those contributed by a Portadam, are likely to exceed the bearing capacity of ESU 3 soils. As a result, the Portadam foundation could experience instability and failure. Additionally, excavation and dewatering inside the Portadam present a risk for piping and excavation instability.



Sage's data review indicates that soft plastic/cohesive, fine-grained foundation soils were not present at the Irondale Iron and Steel Plant site (GeoEngineers 2009).

In addition to foundation soil concerns, Sage concludes that a Portadam is not feasible at West Bay Yards due to groundwater management requirements of the shoreline excavation. The site groundwater table is shallow, and the volume of groundwater directed toward the shoreline/the proposed excavation is expected to be substantial. A four-sided Portadam, or extensive berms and ditches with internal excavation dewatering, would be required to divert groundwater. Pump failure could cause upwelling of groundwater within the excavation and failure of the Portadam at low tide (i.e., wall loading in the wrong direction). A dam failure could potentially affect aquatic habitat via contaminant transport into West Bay.

CLOSING

If you have questions or comments, please contact the undersigned at calvinm@sagegeotechnical.com.

SAGE GEOTECHNICAL, LLC

Calvin McCaughan, PE
Principal Geotechnical Engineer

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REFERENCES

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Landau. 2020. Technical Memorandum: Preliminary Geotechnical Engineering Recommendations, West Bay Yards, Olympia, Washington. Landau Associates, Inc. August 27.