

**Public Review Draft Remedial Investigation Report, 5900 West Marginal Way Site
Duwamish Shipyard, Inc. Comments**

Comment No.	Section/ Page No.	Section Name/Topic	Duwamish Shipyard, Inc. (DSI) Comment
1	Section 2.6.1, page 8; Section 2.6.7, page 15	Historical Ownership; Log and Vessel Mooring	The text states, "Between April 19, 1960, and December 11, 1964, the Port of Seattle allowed DSI to moor vessels and store logs in the Embayment pursuant to the terms of a real estate contract." In 1960, DSI purchased a submerged parcel (in the embayment), previously used for log and vessel mooring, from Commercial Waterway District No. 1. There is no record of DSI storing logs in the embayment during its ownership of the submerged parcel, which lasted until 1964. Please revise this statement accordingly.
2	Section 2.6.5, page 12; Section 2.6.6, page 14	Descriptions of the Septic Tank	The descriptions of the septic system should be revised to clarify that the septic system was formerly owned by the U.S. Army (and later Reichhold) and was never used by DSI. As a result of Property boundary adjustments in 1964, the septic tank (not used by DSI) is now located on DSI property.
3	Section 2.6.6, page 14	Chemical Manufacturing/ Rail Spurs/Loading Area	Expand upon the historical use of the Reichhold rail spurs, including their use for transporting PCP and other chemicals manufactured at the former Reichhold facility. Elevated concentrations of PCP and arsenic have been detected in this area (potentially due to spillage along the rail spur), which coincide with hotspots just across the property boundary on the DSI site.
4	Section 2.7.1, page 17	Adjacent Properties – Duwamish Shipyard, Inc./ Graving dock history	The text states, "DSI constructed a graving dock before 1946, which was expanded by 1956. DSI used the graving dock between 1955 and January 2007." The former graving dock is located on Alaska Marine Lines (AML) property. DSI did not build the graving dock; it was constructed by General Construction Company. DSI has never owned the graving dock. DSI periodically used the graving dock under lease and/or license agreements with General Construction, and then later with AML, between 1955 and January 2007. Please update this section accordingly.

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5	Section 2.7.1, page 18; Section 7.4.2.1, pages 111-112, and Figures 2-3, 2-4, 2-5, 2-6, 3-2, 3-3, 3-7, 3-8, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, and 7-6	Adjacent Properties – DSI, Shoreline Outfall; Stormwater from Off-Site Sources	The text states, "Stormwater from the DSI property was historically captured in a stormwater conveyance system that discharged into the Embayment." This text is inaccurate. The referenced shoreline outfall (shown on the listed figures) was never used by DSI and, according to a 1956 U.S. Army Real Estate Map (Appendix B-2 of Anchor QEA 2019), this outfall was historically connected to a septic drainage line and septic tank that serviced the main office building and women's and men's restroom buildings (near the former U.S. Army impregnating plant and charcoal/carbon building), which were later converted into laboratories during Reichhold operations. According to the 1956 U.S. Army Real Estate map, former surface drainage ditches also drained to the former shoreline outfall location. Wastewater permit files from the Washington State Pollution Control Commission (summarized in SAIC 2007) also document that the Reichhold facility historically discharged wastewaters into the LDW using ditches and a septic system from the manufacturing area to the river. The text should be revised to indicate that this shoreline outfall is associated with discharges from the former U.S. Army and Reichhold facilities. Until 2009, stormwater from the DSI property was discharged from former DSI Outfall 005 (a permitted shoreline outfall) shown in Figure 2-2 of the DSI RI Report (Anchor QEA 2019). Former DSI Outfall 005 was located in the central part of the DSI site shoreline, over 200 feet downstream of the embayment. Multiple figures label this LDW shoreline outfall "Former DSI Outfall." The label is inaccurate; this outfall should be labeled as the "Former U.S. Army/Reichhold shoreline outfall" based on the above historical documentation.

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6	Section 6.2.8, pages 85-86	Off-Property Sediment Sample Results/ Sources of sediment contamination	The text states that the “DSI outfall” is a potential source of multiple COCs (e.g., D/F, PCP, PCBs, and arsenic) to site sediments. This conclusion is not supported by DSI and LDW site data and should be revised accordingly. As detailed in the DSI RI Report (Anchor QEA 2019), sediment D/F concentrations are highest in Glacier Bay sediments with lower concentrations present in DSI sediments, which are comparable to levels in the LDW navigational channel. Historical U.S. Army/Reichhold operations included discharge of PCP-containing wastewaters to the LDW, which are likely attributed to elevated PCP concentrations identified in sediments. PCP is not associated with historical DSI shipyard operations and is only present in upland areas of the DSI site that overlap with former Reichhold chemical operations and wastewater storage (i.e., the southern property area). PCB levels in DSI site soils are typically low (lower than LDW sediment concentrations) and do not correlate well with the PCB Aroclor mixtures present in nearby sediments, which may be indicative of other (non-DSI-related) sources. Arsenic exceedances are well documented throughout the 5900 West Marginal Way site, including upland soil, groundwater and riverbank soils, which are all potential sources to Glacier Bay sediments.
7	Section 7.4.1.3, page 103	Former Chemical Manufacturing/ Rail Spur Area	The report notes that the elevated concentrations of PCP and D/F are detected in isolated areas of soil and groundwater along the northern boundary of the 5900 West Marginal Way Site near the former Reichhold laboratory and rail spur/loading area. Screening-level exceedances are also present for arsenic (soil and groundwater), copper, and zinc (soil) in the rail spur area. In Section 7.4.1.2, these are attributed potentially to former charcoal and whetlerite manufacturing/testing due to leaks, spills, discharge, or disposal. Revise Section 7.4.1.3 to include historical rail spur operations (e.g., spillage) as potential sources of soil and groundwater contamination.

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8	Section 7.4.2.1, page 112	Stormwater from Off-Site Sources/ TBT	The text states that tributyltin has been detected in stormwater solids at the DSI property. This statement is inaccurate; catch basin solids samples collected during the DSI RI (Anchor QEA 2019) were non-detect for tributyltin.
9	Section 7.4.2.4, page 113	Groundwater and Bank Erosion from DSI Property / Sediment Concentrations	The discussion of sediment in the vicinity of the [former] DSI drydock notes that the samples contained "some of the highest detections of arsenic in the LDW." A reference should be added to indicate the dataset used to support this claim or the statement should be removed.

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10	Section 7.4.2.4, pages 113-114	Groundwater and Bank Erosion from DSI Property	The text states "Groundwater discharges and bank erosion from the DSI property might also be a continuing source of COPCs to the upland and aquatic portions of the Site. The DSI RI Report (Anchor QEA 2019) reported COPCs, including dissolved arsenic, copper, nickel, zinc, benzo(a)anthracene, and chrysene above SLs in shallow groundwater beneath the DSI property, with arsenic reported at greater than 50 µg/L near the northern boundary of the Property." The presence of elevated arsenic in DSI Site groundwater was further evaluated in an RI Addendum: Arsenic Characterization Study Memorandum (Anchor QEA 2020). That investigation could not replicate the original elevated results and found that elevated dissolved arsenic groundwater concentrations (less than 50 ug/L in the vicinity of the southern DSI property boundary) are highly localized, likely due to reducing groundwater geochemical conditions. Soil concentrations for arsenic were below RI screening levels and do not explain the source. Historical Reichhold rail spur operations may be associated with elevated arsenic in this area. Dissolved copper, nickel, and zinc groundwater concentrations are only elevated in the northern portion of the DSI property and there is no evidence to indicate an influence of these COCs at the 5900 West Marginal Way Site. cPAHs are below DSI Site SLs in shallow groundwater. These statements should be revised accordingly.
11	Section 7.4.2.4, page 114	Groundwater and Bank Erosion from DSI Property/ Groundwater Flow Directions	The text states that "shallow groundwater beneath the DSI property generally flows to the west toward the LDW, shifting to the west-southwest in the vicinity of the northeastern Property boundary during low-low tide." The text is inaccurate and should be revised to state that shallow groundwater beneath the DSI property generally flows to the east toward the LDW. See Section 4.2.2 of the 2019 Draft RI (Anchor QEA 2019).

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12	Section 7.5.2.2, page 120	Shallow Aquifer Solute Transport via Advection	The text states "groundwater from the DSI property and T115 discharges to the Embayment via seeps." During the DSI Site RI, no seeps were observed along the southern shoreline of the DSI property. Please provide documentation to substantiate this statement or remove "the DSI property" from this statement.