INTERIM ACTION WORK PLAN
PHASE 2 REMOVAL ACTION

Maralco Site
7730 South 202nd Street, Kent, WA

Agreed Order No. DE 22343
Facility Site Identification No. 2067
Cleanup Site Identification No. 5055

December 30, 2024

Prepared for:

BRIDGE

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Prepared by:

CRETE
CONSULTING, INC.

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Acronyms and Abbreviations

Bridge	7730 202nd Street, LLC
BMP	Best Management Practices
CAP	Cleanup Action Plan
CRETE	CRETE Consulting Incorporated
cPAH	carcinogenic polycyclic aromatic hydrocarbons
COI	constituent of interest
CSM	conceptual site model
cy	cubic yard
Ecology	Washington Department of Ecology
EMR	Environmental Management Resources
EP-Tox	Extraction Procedure Toxicity
ft	foot
IAWP	Interim Action Work Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
KBI	Kawecki-Berylco, Inc
MKE	Morrison-Knudsen Environmental Services, Inc.
mg/kg	milligram per kilogram
ug/L	micrograms per liter
MTCA	Model Toxics Control Act
PCUL	Preliminary Cleanup Level
Property	Maralco Former Secondary Aluminum Smelter Property
OSHA	Occupational Safety and Health Act
QAPP	Quality Assurance Project Plan
RI/FS	Remedial Investigation/Feasibility Study
RIWP	Remedial Investigation Work Plan
REL	Remediation Level
SL	Screening level
SRIWP	Supplemental Remedial Investigation Work Plan (Agency Review Draft)
SWPPP	Stormwater Pollution Prevention Plan
TPH	total petroleum hydrocarbons
TPH-diesel	total petroleum hydrocarbons in the diesel range
TCLP	Toxicity Characteristic Leaching
URS	URS Corporation
UST	Underground Storage Tank
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
VCP	Voluntary Cleanup Program
WAC	Washington Administrative Code

Engineer's Certification

I certify that the Interim Action Work Plan Phase 2 Removal Action for the Maralco Site located at 7730 South 202nd Street in Kent, Washington was completed by me or by a person under my direct supervision.

Work for this project was performed in accordance with generally accepted professional practices for the nature and condition of work completed in the same or similar localities, at the time the work was performed.

No other warranty, express or implied, is made.

Grant Hainsworth P.E., Principal
Washington State PE Number: 33192
Expiration Date: 6/5/2025

1 Introduction

This Interim Action Work Plan (IAWP) Phase 2 Removal Action describes cleanup actions at the Maralco Site located in Kent, Washington (Figure 1). This IAWP was prepared in accordance with Section VII.E of Agreed Order No. DE 22343 (AO) between the Washington State Department of Ecology (Ecology) and 7730 202nd Street, LLC (Bridge). The Site was most recently enrolled in the Voluntary Cleanup Program (VCP; NW3339) and had previously been enrolled in the VCP (NW2356) by Brown Dog Investments LLC. VCP NW3339 was terminated on January 18, 2024, upon the effective date of the AO.

The Maralco Site (Site) as defined under the AO is where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located. The Site is generally located at or in the vicinity of 7730 South 202nd Street in Kent, Washington (Property) and includes contaminated areas within the Property boundary (King County Parcel No. 631500-0300) and beyond the Property to the north. The extent of the Property is indicated on Figure 1.

Ecology has been engaged at the Site (Cleanup Site ID 5055) since 1987. Numerous investigations and two interim actions were performed at the Site between 1987 and 2017. Crete Consulting Incorporated (CRETE) has been working with Bridge since March 2021 to assess environmental conditions at the Site, including performance of additional site characterization and conducting an interim action.

From August through November 2023, Bridge completed an interim action under VCP NW3339 to remove and dispose of more than 35,000 tons of waste material including black dross, washed oxides, and bag house dust at an off-site permitted landfill. The 2023 interim action was referred to as Phase 1 and was performed in accordance with the Interim Action Work Plan revised July 25, 2023 (CRETE 2023b). The Phase 1 Interim Action activities are summarized in the draft Supplemental Remedial Investigation Work Plan (SRIWP; dated February 2, 2024) and documented in the Interim Action Cleanup Report[1], dated February 2, 2024, which is also included as Appendix A of the draft SRIWP (CRETE 2024a).

The focus of the Phase 1 Interim Action in 2023 was to remove dross piles from the Site so the area could be accessible for the completion of the remedial investigation. Excavation of contaminated soil was not included in the Phase 1 Interim Action. The onsite drainage ditches were found to contain soil that was contaminated from the dross stockpiles. The surface soil beneath the former dross pile was also found to be contaminated with one or more metals.

The work documented in this IAWP focuses on Phase 2 of the interim action which includes the removal of residual waste material (soil and dross) that remains after the Phase 1 Interim Action.

[1] The February 6, 2024 Interim Action Cleanup Report can be found on the Ecology's Cleanup Site Website at the following link: https://apps.ecology.wa.gov/cleanupsearch/document/136646

In a letter to Ecology dated September 18, 2024, Bridge requested permission to begin implementing the Phase 2 Interim Actions after submission of the Public Review Draft Phase 2 IAWP but prior to completion of public comment (CRETE 2024b). Ecology allowed for the Interim Action to proceed, with all work conducted per the September 5, 2024 Public Draft Phase 2 IAWP and the conditions set forth in the September 24, 2024 Ecology letter (Ecology 2024c). Bridge started implementing the Interim Actions on September 27, 2024.

Site clearing and demolition started in July 2024. During site clearing activities, soil sampling was performed to confirm the presence of contamination in areas that were previously inaccessible and at a location where stored drums were uncovered. During demolition, sampling was also performed at the former holding ponds where washed oxides and potentially contaminated soil were discovered. These sampling data have been added to this IAWP with associated updates to text, tables, and graphics. Two additional interim action removal areas were added to the IAWP based on these data.

The Phase 2 Interim Actions described herein will be performed consistent with the cleanup requirements of the Washington State Model Toxics Control Act Cleanup Regulation (MTCA; Chapter 173-340 of the Washington Administrative Code [WAC]).

Remedial Investigation (RI) data collection will continue, upon Ecology's approval of the SRIWP, implementation of which is expected to begin in 2024. Data obtained during the Phase 2 Interim Action will be incorporated into the RI report and the development of the feasibility study (FS). Upon the completion and finalization of the RI/FS report, a draft Cleanup Action Plan (DCAP) will be prepared consistent with WAC 173-340-380 to describe the proposed final cleanup action for the Site.

2 Project Background

2.1 Property Location and Description

The Site is located in the Green River Valley in Kent, Washington. The Bridge-owned portion of the Site (the "Property") covers 12.05-acres and is zoned for Heavy Industrial (I3) use. The Property includes a 45,000 square foot building near the western boundary that has been largely abandoned since 1986. A house/office that appears to have been abandoned since 1986 is also present near the northern boundary. The Property boundary is indicated on Figure 1. The lateral extent of the Site will ultimately be defined with the pending completion of the RI.

The Property is bordered to the west by rail lines owned by Burlington Northern Santa Fe (BNSF), to the north by vegetation and South 202nd Street, to the east by 80th Avenue South and a cold storage warehouse facility, and to the south by commercial and industrial facilities.

The Property includes stormwater drainage ditches and an associated wetland. Christopher Ditch is located in the eastern portion of the Property. This ditch is considered a Minor Stream per Kent City Code (KCC). A wetland site assessment was completed in November 2020 (Soundview 2022). The assessment identified Category III and Category IV Wetlands, under the KCC, along portions of the ditch on and off the Property (Wetlands A through D). Wetland A, which is classified as Category III, is located on-property and was estimated to be 34,360 square feet (Figure 2). Wetland A receives seasonal outflow from Wetland D, which is a Category IV wetland located off-Property to the northeast. Wetland C, also classified as Category III, is located off-Property in the South 202nd Street right-of-way, north-adjacent to the Property, and receives seasonal outflow from Wetland A. As part of development activities, the on-Property stormwater ditches will be realigned as shown on Figure 8. Stormwater drainage is discussed in more detail in Section 2.3.1.

The Site is located within a likely vulnerable population or overburdened community as it satisfies all three of the test criteria outlined in Ecology guidance (Ecology 2024a):

1. The Site is located in a census tract that ranks a 10 on the Environmental Health Disparities Index from the Washington State Department of Health's EHD Map;
2. The Site is located in a census tract that is above the 80th Washington state percentile of the Demographic Index from the U.S. Environmental Protection Agency's EJ Screen; and
3. The Site is located in a census tract that is at or above the 80th Washington state percentile of the Supplemental Demographic Index from the U.S. Environmental Protection Agency's EJ Screen.

This proposed Phase 2 Interim Action, as well as the prior Phase 1 Interim Action discussed herein, have served to partially address historical impacts at the Site and to improve the local environment. Those contributions to environmental justice will be further considered and documented in the RI/FS.

2.2 Property History and Past Land Use

The history of the Property was determined using information from the Environmental Data Resources, Inc.'s (EDR's) state and federal environmental database searches, King County Assessor's Property Characteristics Report, Polk records, historical aerial photographs, Sanborn maps, USGS topographic maps, and the Washington State Department of Ecology (Ecology) central records.

The Property was agricultural land until the late 1970s. Maralco Aluminum (Maralco) operated a secondary aluminum smelter at the Property beginning in 1980. The smelter produced aluminum ingots using the molten salt process from recycled aluminum cans, Kawecki-Berylco, Inc. (KBI) dross, and scrap metal. The wastes created from this process included black dross (or "salt cake") which was a mixture of salt, aluminum oxide, and impurities from the molten salt smelting process. During the later part of operations, salt was recovered from the black dross in what was referred to as a "salt saver" process, where the dross was mixed with water in three concrete holding ponds to extract and remove salts from the metal oxides. The metal oxide residues from this process were disposed on-site in an unlined "oxide lagoon". Berms formed of black dross surrounded the lagoon area (MKE 1991).

During the first year of operations, the black dross was hauled off the Property for disposal. After 1981, the black dross was stored onsite in a consolidated stockpile located on the south and east sides of the building (Figure 2). Waste material, which included washed aluminum oxide, black dross (including oversized screenings and furnace skimming), KBI dross, and bag house dust contained within the bag house filters and bins, was also stockpiled inside the building. The stockpiled waste remained onsite from 1986 through the fall of 2023, when the Phase 1 Interim Action was performed (see Section 2.6.2).

2.3 Current Conditions

2.3.1 Stormwater Drainage

The Property is located within a regional stormwater drainage system that is managed by King County Drainage District #1 (KCDD#1). This system conveys stormwater via a series of ditches. There are two stormwater ditches that transect the Property: an unnamed ditch that conveys stormwater from south of the Property and Christopher Ditch that conveys stormwater from north and east of the Property (Figure 2). Christopher Ditch connects with the unnamed ditch in the middle of the Property and conveys stormwater off the Property to the northwest via an underground culvert located near the north Property boundary

(Figure 2). The on-Property ditch was lined and re-routed in 1987 to reduce the potential for off-Property migration of dross eroded from the outdoor stockpile (MKE 1991).

The culvert first discharges to the South 202nd Street right-of-way (ROW) ditch (Wetland C). The ROW ditch discharges via a culvert under the BNSF property, daylights briefly, then passes underneath 77th Avenue South where it connects to the KCDD#1 B86 Ditch. The stormwater then passes through a KCDD#1 wetland and several other ditches prior to discharge to Lower Mill Creek approximately ¾-mile downstream from the Property (Figure 3).

There is a former stormwater pond (shown on Figure 2) located near the northwest corner of the Property. The pond collected stormwater from the building roof and the paved area in the northwest corner of the Property. Two feet of contaminated soil were removed from bottom of the pond as part of an Ecology interim action in 1991 (See Section 2.6.1). A buried culvert connected the pond to the South 202nd Street ROW ditch (Figure 2); however, the culvert could not be located during recent investigation activities.

2.3.2 Drinking Water

Drinking water for the Site area is supplied by the City of Kent. The City of Kent obtains the drinking water from upland springs and wells on the Kent East Hill and from wells located in the Green River Valley. The City of Kent also purchases water from the City of Tacoma, which is sourced from the Green River watershed. None of these water supply sources are located within a 1-mile radius of the Property. The Property is also located outside the 10-year time of travel wellhead protection area of all water supply wells.

2.3.3 Regional Geology

The Site is located in the lower Green River Valley, which runs north from Auburn to Renton. The valley is located within the Puget Sound Lowland. The physiography of this area has been dominated by the advance and retreat of continental glaciers during the Vashon Glaciation in the Pleistocene Epoch. The Vashon stade was the last glacial retreat and advance, which began to recede approximately 10,000 years before present (Stantec 2017).

Advance of the glaciers into western Washington carved out the Kent Valley while depositing outwash chiefly comprised of sand and gravel and dense compacted glacial till. Retreat of the glaciers left the valley as a deep marine embayment. The Green, White, and Cedar Rivers deposited a thick accumulation of fluvial sediments, which were eroded from the glacial drift uplands into the valley. The remaining sediments consist of coarse sand and gravel near the mouth of the rivers at Auburn and Renton, and become finer toward the Kent area.

2.3.4 Site Geology

Data collected during environmental subsurface investigation activities at the Site indicate native unconsolidated sediments observed from the ground surface to the maximum depth explored (approximately 20 feet below ground surface [bgs]). Shallow fill areas extend from

the railroad spur across the building footprint and to the western boundary of Christopher Ditch. The fill is of varying thickness and is generally a brown gravelly sand with fine to coarse grained sand and subround to round gravel. Native soil is primarily silty fine sand with some interbeds of fine and medium sand, ranging from brown to gray to black. There are interspersed organic-rich pockets of decomposing woody and peaty debris. Site geology is illustrated in cross-sections provided as Figures 4 and 5.

A dark gray silty clay layer has been identified along the western and northern end of the Site between DPT-17 and MW-4 in the northwest portion and extending to south to MW6 and MW3A down to about 11.5 ft bgs. It is unclear how continuous this clay is across the central expanse of the Site, but it extends to as far east as B-5 along the western perimeter of the former dross pile but not to MW-5R. A gray clay layer is also present along the eastern boundary of the Site, as identified at MW-1 and MW-2 ranging from 6.5 to 17 ft bgs.

2.3.5 Groundwater

The water table occurs at a depth of approximately 3 to 7.5 feet bgs in the wet season. During the dry season, the water table is measured at 5 to 9.5 ft bgs. Previous reports indicate that groundwater migration is to the north-northwest. Local groundwater on the Property is likely influenced by the surface hydrology, including the ditches that cross the Property and culverts that drain surface water from adjacent upgradient sites, including from the Knight Transportation and Walman Optical properties to the south and the properties east of 80th Avenue.

Figures 6 and 7 illustrate dry season and wet season groundwater flow conditions. In the dry season (Figure 6), groundwater is below the bottom of the local ditches and groundwater flow is generally to the north although a groundwater mound at MW6 was observed during this gauging event. In the wet season (Figure 7), groundwater flow is generally to the north, but a groundwater depression is noted in the south-central portion of the Property. This groundwater depression appears to be due to groundwater discharging to the southern half of the unnamed ditch. The ditches primarily serve to recharge groundwater as surface water ponds in the ditches in the central portion of the Property. Regionally, groundwater flow is to the northwest towards the Green River, located approximately 1 mile to the northwest of the Property.

2.4 Planned Land Use

Redevelopment of the Property will include the following:

- Demolition of all existing structures
- Construction of an approximate 178,700 square foot warehouse building with concrete and asphalt loading dock, roads, and parking area. It is estimated that 70% of the Property will be impervious once the project is completed.

- Portions of the on-Property stormwater ditches (and wetland buffers) will be filled and a new wetland will be created in the northeastern portion of the Property.
- Installation of new stormwater collection systems and new utility connections. Stormwater collected on the redeveloped Property will be routed to stormwater detention vaults with discharge to the manhole located in the South 202nd Street cul-de-sac. Off-Property stormwater from the south and northeast will be routed to the new wetland. Stormwater will overflow from the wetland to the new Christopher Ditch alignment along the north edge of the Property. The new ditch alignment will connect to the existing culvert that passes beneath the South 202nd Street cul-de-sac and discharges to the South 202nd Street ROW ditch.

The proposed new building layout, planned stormwater modifications, parking, and the wetland modifications are shown on Figure 8. The footprint of the new warehouse and asphalt parking will completely cover the former building area, the outdoor dross pile area, and portions of the on-Property drainage ditches. Redevelopment activities will be conducted on the Property (within the Property boundaries).

2.5 Previous Field Investigations

Several previous investigations have been completed at the Site. Figure 9 provides a sample location map for these previous field investigations. Results of previous sampling efforts are summarized on Tables 1 through 9.

2.5.1 Ecology & Environment Site Assessment, 1987

E&E completed a site assessment in the summer of 1987 (E&E 1987). According to E&E, Maralco had analyzed samples of black dross, baghouse dust, and aluminum oxide using the Extraction Procedure Toxicity (EP-Tox) method and acute fish toxicity testing in February and July of 1986. The sample results indicated the materials did not exceed the then current EP-Tox hazardous waste criteria; however, the surface water sample mortality for acute fish toxicity testing was 100%. Four soil samples were collected from the ditches (B1 through B4). Samples B3 (on-Property) and B4 (off-Property), collected from the upstream eastern portion of the ditch system, had no detected compounds above screening levels (Tables 6 and 7). Sample B1, located in the downstream off-Property portion of the ditch, had detections of three compounds (arsenic, copper, and zinc) above screening levels (Table 7). Sample location B2 was collected from the unnamed ditch adjacent to the black dross pile. The analytical results indicated that metals contained in the black dross (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel and zinc) were present in the drainage ditch. Six of the detected metals (cadmium, chromium, copper, lead, nickel, and zinc) had elevated concentrations (Table 6). To evaluate whether the ditch soil would designate as a hazardous waste, the sample was also submitted for EP-Tox analysis. The results indicated that the sample did not meet the criteria of a hazardous waste.

2.5.2 MKE Phase I Remedial Investigation, 1990

Morrison-Knudsen Environmental Services, Inc. ("MKE") performed remedial investigation activities at the Site between May and November 1990 (MKE 1991). Groundwater, soil, sediment, surface water, and black dross samples were collected as part of this investigation. Assessment activities included the characterization of the exterior dross piles; installation, development, and sampling of four monitoring wells (MW-1 through MW-4); collection and analysis of samples from seven ditch/drainage locations (SW-1 through SW-4 and SW-6 through SW-8); and collection and analysis of shallow soil samples from 16 hand auger locations (HB-1 through HB-16).

Surface soil impacts were detected in the northeast portion of the Property, in the vicinity of the former house/office structure. These locations are represented by HB-1, HB-2, HB-3, and HB-5 (Table 1, Figures 9 and 10). HB-1, HB-2, and HB-3 were reported to have been taken from a former dross stockpile area and indicated that residual contamination remained in the upper foot (MKE 1991). There is no documentation indicating that the impacted soil at HB-1, HB-2, HB-3, and HB-5 was ever removed.

Testing of the dross samples for leachable metals indicated that the material was not a characteristic hazardous waste. Elevated groundwater concentrations were noted for various metals (aluminum, arsenic, barium, copper, iron, lead, mercury, and selenium). The surface water and ditch sample results revealed that dross was entering on-Property drainage ditches and that surface water was transporting the material off-Property. The report indicates that in 1987 Ecology placed plastic barricades around the dross stockpile to prevent run-off from entering the drainage ditches; however, by 1989 the barricades were no longer in place (MKE 1991).

2.5.3 Enviros UST Decommissioning & Site Assessment, 1995

On behalf of Ecology, Enviros, Inc. decommissioned a 35,000-gallon diesel underground storage tank (UST) located in the parking lot at the northwest portion of the Property in July of 1995 (Figure 9; Enviros 1995). A former fuel dispenser was noted at the west end of the UST. Approximately 150 cubic yards (cy) of contaminated soil was removed from the excavation and stockpiled on visqueen. The report indicates that the UST was observed to be in generally good condition with the exception of three pin-holes located near the west end of the UST. Confirmation soil samples were collected from the base and sidewalls of the excavation (UST PE-1 through UST PE-5). The analytical results indicated the presence of diesel-range organics (DRO) in soil from only the south and west sidewalls (6,300 milligrams/kilogram [mg/kg] and 96 mg/kg respectively), with only the sample collected from the south sidewall exceeding the MTCA Method A screening level of 2,000 mg/kg. DRO was also detected in stockpiled soils from the excavation (SP-1 through SP-3) at concentrations ranging from 1,200 mg/kg to 2,100 mg/kg. Sample results are shown on Table 4. According to the report, Ecology approved returning stockpiled soil to the excavation following completion of UST removal activities (Enviros 1995).

2.5.4 URS Black Dross Pile Characterization, 2000

In July 2000, URS Corporation performed black dross pile characterization activities (URS 2000). The work included collection and analysis of one discrete black dross sample and four composite black dross samples. The samples were collected east of the building with a hand auger from a depth of five feet or less except for one sample that was collected at a depth of 9.5 feet. Testing included evaluation of toxicity using the Toxicity Characteristic Leaching Procedure (TCLP) and fish bioassay test methods. Results indicated that the black dross was not a characteristic hazardous waste nor was it a State of Washington Dangerous Waste (URS 2000).

2.5.5 EMR Former UST Investigation, 2003

In January 2003, Environmental Management Resources, Inc. (EMR) conducted additional site characterization activities in the former UST area. The following information is from the Stantec Phase 1 Environmental Site Assessment Report (Stantec 2015). Sampling activities were documented in the draft cleanup action (URS 2004). Relevant information described in this report is as follows:

- Two 1.5-inch copper pipes extended from the UST area to the southeast toward the main building suggesting that diesel may have been used to fuel one or more of the furnaces within the building. These pipes were only removed to the edge of the UST excavation, where pipe left in place was capped.
- Soil and groundwater samples were collected from two borings: SB-1 located in the center of the former UST cavity and SB-2 located along the southern edge of the former UST cavity. Soils samples indicated no evidence of petroleum exceeding cleanup levels. However, the groundwater sample collected from boring SB-1 contained an elevated concentration of total petroleum hydrocarbons in the diesel range (TPH-diesel) that exceeded the respective cleanup levels; however, the sample was collected through the hollow stem auger using a disposable bailer in a manner that was not consistent with standard groundwater sampling protocols (EMR 2003a).

2.5.6 EMR Remedial Investigation/Feasibility Study, 2003

EMR conducted a draft Remedial Investigation/Feasibility Study (RI/FS) in 2003 (EMR 2003b). The RI/FS included the installation, development, and sampling of one new monitoring well (MW-5); sampling of three of the four existing monitoring wells (MW-2 through MW-4); collection of 22 dross samples from four soil borings (DP-1 through DP-4); and collection of two soil samples from one soil boring (DP-5). Depth to groundwater measurements collected by EMR and others indicated that groundwater occurs at a depth of approximately 5 feet below the ground surface, and that groundwater flow is generally to the north-northwest. Aluminum, arsenic, barium, chloride and fluoride were found at elevated concentrations in groundwater. The dross and ditch soil were noted to contain arsenic, barium, copper and

mercury at elevated concentrations. Leachability testing indicated that the black dross was not a characteristic hazardous waste (EMR 2003b).

The Draft RI/FS report recommended Alternative 2 - Removal and Off-Site Disposal as the recommended alternative. This alternative included the removal and off-site disposal of the dross and other wastes inside the building and impacted soil and sediment.

2.5.7 URS Warehouse Waste Inventory, 2004

URS Corporation (URS) completed an inventory of stockpiled particulate matter collected in baghouses located in the southwest corner of the building in November 2004 (URS 2004). Seven cribbed stockpiles were noted. The total estimated volume of material in these stockpiles was 1,100 cubic yards. Also noted by URS were five 55-gallon drums of waste located in the southeast corner of the building. Further characterization of these wastes was recommended by URS.

2.5.8 URS Draft Dross Sampling & Waste Determination, 2005

URS perform extensive sampling and analysis of the outdoor black dross stockpile in October 2005 (URS 2006). Based on data collected in 1987 and 1990, the dross stockpile book-designated as a state-only dangerous waste per the Dangerous Waste Regulations (WAC 173-303). Samples were analyzed for total and TCLP metals concentrations and ignitability, corrosivity, and reactivity. Fish and/or rat bioassays were also performed on the most contaminated dross samples. Based on these data, the outdoor stockpile of black dross did not designate as a dangerous waste. Ecology concurred with this determination and issued a memorandum (Ecology 2007) documenting that the outdoor black dross stockpile could be disposed in a permitted RCRA Subtitle D landfill.

2.5.9 Stantec Limited Phase II ESA, 2016

Stantec Consulting Services Inc. (Stantec) performed a Limited Phase II Environmental Site Assessment (ESA) at the former Maralco Aluminum Property in October and November 2016 (Stantec 2017). The work included collection and analysis of soil and water samples from six direct-push borings (B-1 through B-6), sampling two locations along the unnamed ditch (SS-1 and SS-2), groundwater sampling from one existing monitoring well (MW-2), and collection and analysis of a composited waste characterization sample of the black dross. The results of the Limited Phase II ESA indicated that metals, chloride, fluoride, and benzo(a)pyrene exceeded screening levels in groundwater, surface water and ditch sediment at the Property. A summary of Stantec's conclusions and recommendations are provided below.

- Mercury was detected at concentrations greater than the natural background levels for the Puget Sound Basin in soil at the Property. The likely source of these contaminants was the black dross stockpiled onsite. The stockpile material was covered as part of an interim action in 1991; however, the cover had not been maintained over time and the majority of the stockpile was exposed to surface

water runoff and wind dispersion. Stantec noted that interim actions to mitigate erosion of this material could include placing and securing a visqueen cover over the stockpiled material and erecting new barricades (e.g., silt fences or similar) to prevent the black dross from entering the onsite drainage ditches.

- Based on the data from borings B-1 through B-3, petroleum hydrocarbon impacted soil was not identified in the former UST excavation area. No further evaluation of soil in this area of the Property was recommended.
- Only one of the five existing monitoring wells was sampled during this investigation. Stantec recommended replacement of monitoring wells MW-3, MW-4, and MW-5, obtaining applicable permits to gain access to MW-1, and performing additional well monitoring activities to adequately delineate the horizontal and vertical extent of contaminants in groundwater.
- Surface water at the Property has been impacted with aluminum, cadmium, lead and chloride. Similarly, surface sediment has been impacted with cadmium, chromium, and silver and elevated levels of chloride. Stantec noted that these contaminants may be migrating off-site via surface water or sediment transport in the drainage ditches and recommended sampling surface water and ditch samples from the upgradient portion of the ditch along the southern property boundary and at a downgradient location near the northern Property boundary prior to discharge off-site to evaluate their transport. It was also noted that subsurface ditch sampling may also be necessary to fully delineate contamination associated with the drainage ditches.
- Internal testing by two disposal companies reported that the black dross was suitable for disposal at a Subtitle D landfill. Stantec recommended that the wastes inside the building be characterized to evaluate disposal options.
- Lastly, the report noted that the federal wetland delineation manual, state wetland rating system and City of Kent code had been revised since the original wetland delineation and that, therefore, the wetland boundaries should be verified and the wetland report updated.

2.5.10 Aerotech Stockpile Assessment, 2017

In May 2017, Aerotech Environmental Consulting, Inc. (Aerotech) collected 32 discrete samples from the waste stockpiles and surveyed the site with an aerial drone to estimate the quantity of material stockpiled and the density of the black dross for the purpose of determining disposal costs (Aerotech 2017a). Aerotech contracted Azure Green Consultants to conduct the Aerial Drone Survey of the Site on May 8, 2017. Azure Green Consultants provided an estimate of 25,177 cubic yards for the outdoor stockpile.

The black dross density estimates ranged from 0.76 to 1.14 tons per cubic yard. Several factors likely caused the variability of density. They included but were not limited to:

- varying moisture and water content;
- the approximate measure of 5-gallons of the material;

- variability in the content of the sample (i.e. concrete and or cobbles);
- and varying measurement output from the scale.

To accurately estimate the cost of disposing the stockpile present at the Site, Aerotech recommended utilizing the entire range of the data when predicting the cost of removing the dross stockpile from the Site.

2.5.11 Aerotech Well Installation & Monitoring, 2017

In July 2017, Aerotech completed four direct-push soil borings as groundwater monitoring wells (MW3A, MW4A, MW5A and MW6) to evaluate potential off-Property migration of groundwater contaminants (Aerotech 2017b). Monitoring well MW3A, MW4A and MW5A were replacement locations of previously destroyed or missing locations MW3 through MW5.

Soil samples were collected and analyzed from MW3A, MW4A, and MW6. The results indicated no elevated concentrations of aluminum, lead, total chromium, cadmium, arsenic, mercury, barium, silver or selenium were present in any of the soil samples.

Groundwater samples were collected and analyzed from all four of the new monitoring wells. The results indicated elevated concentrations of fluoride in MW3A and MW6, elevated concentrations of chloride in MW4A and MW6, and elevated concentrations of arsenic and aluminum in MW5A.

The elevated concentrations at MW3A, MW4A, and MW6 along the northwest and western Property boundary appear to be associated with the dross stockpile. Based on the investigation results, it appeared that groundwater with concentrations above regulatory standards is migrating off-Property toward the north and northwest.

2.5.12 Recent Investigation Work, 2021 to 2023

CRETE has been assessing environmental conditions at the site since March 2021. Data has been collected to confirm prior data and address data gaps, which were summarized in the Remedial Investigation Work Plan (RIWP) and associated RIWP addendum submitted to Ecology under VCP NW3339 (CRETE 2022, CRETE 2023a). The RIWP was submitted to Ecology on March 16, 2022 and an addendum was submitted on June 23, 2023. Since 2021, CRETE has performed the following activities:

- Direct push soil and groundwater sampling, including assessment of soil conditions below the outdoor black dross pile (samples DPT-1 through DPT-22)
- Reassessment of the outdoor black dross pile volume
- Assessment of former diesel source area and extent of metals contamination (SB-UST-01 through SB-UST-03)

- Installation of monitoring wells (MW-5R, MW-7, and MW-8; installed August 23, 2022)
- Groundwater well sampling (MW-1, MW-2, MW3A, MW-4, MW4A, MW5A, MW-5R, MW6, MW-7, MW-8)
- On and off-Property ditch sampling (Sed-02 through Sed-08, KCDD-S and KCDD-N)
- Indoor stockpile measurement and sampling
- Sampling of the stormwater pond (Sed-01).

Site investigation locations are identified on Figure 9, including historical sampling locations, and data are provided in Tables 2, 3, and 6 through 10.

2.6 Previous Remedial Actions

2.6.1 1991 Interim Action

In September and October 1991, interim remedial activities were performed at the site by MKE on behalf of Ecology. Ecology files did not include a copy of the *Interim Action Completion Letter Report* prepared by MKE but summaries of the work were presented in other reports (EMR 2003b, URS 2004, Stantec 2015). The interim actions consisted of five activities: (1) fencing the site, (2) improvement of a stormwater collection pond, (3) rerouting of roof drains, (4) grading the plant area, and (5) covering the black dross piles with tarps. The following details were provided:

- The fence and gates were installed around the perimeter of the Property (except the house on the northern side of the Property) to limit access. Warning signs were installed along the fence.
- The stormwater collection pond northwest of the building was improved; approximately two (2) feet of soil were removed from the pond. The depth of excavation was determined based on visual observation of dross-like materials in the bottom of the pond and previous surface soil analytical results from samples collected at the Property by Morrison Knudsen. Post-excavation confirmation samples were not collected. Materials excavated from the pond were drummed and stored on the Property until their subsequent removal and disposal.
- The roof drains of the building were re-routed to prevent stormwater from draining onto the dross piles.
- The outdoor dross pile was graded to prevent ponding of stormwater and the piles were covered with 5-mil plastic tarping.

2.6.2 1995 Underground Storage Tank Removal

In June 1995, a 35,000-gallon diesel UST was removed from the northwest corner of the parking lot (Figure 9). Visual observations and soil and groundwater analytical results indicated that there had been an historical release from the UST system. Work was completed by Enviros, Inc. on behalf of Ecology and is documented in the report

Underground Storage Tank Decommissioning at the Maralco Aluminum Site (Enviros 1995), as summarized below:

- The report documents the removal of a 35,000-gallon diesel UST.
- Visual inspection of the UST following its removal indicated it was generally in good condition, but did have three pin-holes near its west end.
- Diesel was not detected in soil samples collected from the base, north sidewall, and east sidewall of the excavation.
- Diesel was detected at concentrations of 96 mg/kg and 6,300 mg/kg in the west and south sidewalls, respectively.
- Diesel concentrations in three soil stockpile samples ranged from 1,200 mg/kg to 2,100 mg/kg.
- Following UST removal, all stockpiled soils were returned to the UST excavation.

2.6.3 2023 Dross Stockpile Interim Action Removal

From August 16 through November 29, 2023, approximately 35,000 tons of waste material, located outside in a large stockpile and also located in smaller stockpiles stored inside the building, were removed by City Transfer Inc. and disposed of at Waste Management's Subtitle D Columbia Ridge landfill, located in Arlington, Oregon. Waste included black dross, washed oxides, and bag house dust. Figure 10 shows the interim action footprint for the outdoor stockpile. Waste stockpiled inside the building (stored on the concrete slab floor) is not shown on Figure 10 but is included in the approximately 35,000 tons removed from the site. This Phase 1 Interim Action was performed in accordance with the Phase 1 IAWP (CRETE 2023b) under Ecology's VCP (NW3339). The Interim Action Cleanup Report[2] for the Phase 1 activities is included as Appendix A of the draft SRIWP, currently in review and pending Ecology approval.

The Phase 1 interim action included the removal and disposal of the following wastes:

- Outdoor stockpile
    - Primarily black dross with a smaller amount of aluminum oxide at the northern tip of the pile.
- Indoor stockpiles
    - Washed aluminum oxide
    - Black dross, including oversized screenings and furnace skimming
    - KBI dross
    - Bag house dust contained within the bag house filters and bins

In accordance with the Phase 1 IAWP (CRETE 2023b), surface soil samples were collected between August and November 2023 following removal of the outdoor dross stockpile (Figure 10). Grab soil samples were collected from 50-foot by 50-foot grid cells, with a

[2] The February 6, 2024 Interim Action Cleanup Report can be found on the Ecology's Cleanup Site Website at the following link: https://apps.ecology.wa.gov/cleanupsearch/document/136646

randomly assigned sample location within each grid cell (i.e., labeled as CS-1 through CS-52). Soil samples were analyzed for the following metals:

- aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, barium, iron, nickel, lead, manganese, mercury, silver, selenium, and zinc.

MTCA Method B Direct Contact levels were generally used as soil remediation levels (RELs)[3] to indicate that the dross waste had been removed. Indoor debris piles were located on concrete or in bins, thus samples were not collected from beneath the indoor debris piles. The concrete floor in the building was swept to remove residual waste.

Performance soil samples were collected from 52 locations throughout the removal footprint area; sample locations are shown on Figure 10. The removal footprint was based on the location of the piled dross and did not extend into the on-Property ditches. Compliance with the RELs for all metals, except arsenic, was determined on a point-by-point basis (i.e., direct comparison of concentration to REL). The results showed that all final[4] confirmation samples were below RELs for those metals.

Compliance with the REL for arsenic was evaluated based on statistical analysis, in general accordance with the MTCA three-part rule defined in WAC 173-340-740(7)[5], whereby:

1. The 95% upper confidence limit (UCL) on the sample mean may not exceed the soil REL.
2. No sample may exceed two times the REL, except where modifications are allowed.
3. Less than 10% of the samples may exceed the REL, except where modifications are allowed.

Analysis demonstrated that the 95% UCL was less than the REL and that less than 10% of the sample set exceeded the REL, but that two samples (CS-30C and CS-31C) failed the exceedance factor part of the rule (item 2). Results from these samples locations were more than 2 times the REL. Although the arsenic REL was based on natural background (Ecology 1994), no modifications to the standard MTCA three-part statistical analysis were used for the Phase 1 IAWP data set[6]. The sampling results are presented in Table 5.

[3] MTCA Method A table values were used for lead and mercury, which do not have Method B direct contact levels. The REL for arsenic was adjusted up to natural background, and the REL for chromium was based on natural background because total chromium does not have Method B direct contact levels.

[4] Soil samples from areas that required additional excavation (grid cells 30 and 31, samples CS-30, CS-31 and CS-31B) are not included as final confirmation samples. Excavated samples are shown on Table 5 for reference.

[5] The three-part rule is defined for meeting statistical compliance with a cleanup level. Note that RELs are not cleanup levels as defined in MTCA (WAC 173-340-200).

[6] Modifications may be made to the exceedance factor and/or the percentage of samples exceeding when the cleanup level is based on natural background.

Samples were collected from both inside and outside of the removal footprint from grid cells 14 and 19. Table 5 shows the results of the samples collected from within the footprint (CS-14C and CS-19C) were below MTCA Method B Direct Contact levels and from outside the footprint (CS-14 and CS-19) were above MTCA Method B Direct Contact levels. Samples collected outside of the footprint (CS-14C and CS-19C) represent sample locations within the unnamed ditch. During final site stabilization activities, the contractor encountered buried dross under the north end of the former dross pile. This material remains on site in the vicinity of confirmation sample CS-1.

3 Nature and Extent of Contamination

This section presents a summary of the conceptual site model (CSM) based on currently-available information.

3.1 Sources

The primary source of constituents of interest (Section 3.3) at the Property is the former outdoor black dross pile. The outdoor black dross pile was removed during the Phase 1 Interim Action conducted in 2023. Contamination from the dross has been observed in the groundwater monitoring wells (Figure 11). Concentrations are highest in monitoring wells MW5A (located to the north and west and immediately downgradient of the former dross pile) and MW-8 (located to the south immediately adjacent to the former dross pile).

A secondary source of constituents of interest at the Property are the drainage ditches. The Property is trisected by drainage ditches, portions of which run adjacent to the former dross stockpile. Prior to the Phase 1 Interim Action, surface water runoff and erosion transported dross from the stockpile into the adjacent ditches, which was then transported downstream in the ditch with salts potentially dissolving into the surface water. Stormwater in the drainage ditch is conveyed off of the Property toward the west and eventually discharges to Lower Mill Creek. Contaminated soil has been observed in the on-Property ditches and the off-Property ROW ditch.

3.2 Screening Levels and Constituents of Interest

Soil screening Levels (SLs) were developed in this IAWP to select constituents of interest (COIs) and define the extent of removal. SLs are based on the March 8, 2024 Preliminary Cleanup Level (PCUL) workbook for groundwater discharge to fresh surface water. Ecology determined that material present in the on-Property ditches is soil, not sediment, based on the definition of sediment in the Sediment Management Standards (WAC 173-204-505[22]) and because the ditches do not support benthic habitat. As a result, the soil erosion to sediment pathway PCUL was eliminated from consideration. In addition, terrestrial ecological evaluation PCULs were not considered for this interim action due to the proposed future land use within the western portion of the Property.

PCULs are the most stringent cleanup values associated the following potential exposure pathways:

- Direct contact with soil COIs
- Soil COIs leaching to groundwater for drinking water use
- Soil COIs leaching to groundwater migrating to fresh surface water
- Soil COIs leaching to groundwater migrating to fresh surface water and partitioning to sediment.

For PCULs that are lower than the associated natural background concentration for a COI, the value is adjusted up to the natural background concentration in accordance with MTCA (WAC 173-340-740[5][c] for soil; WAC 173-340-720[7][c] for groundwater). A copy of the PCULs workbook table for soil COIs is provided in Appendix A. The use of PCULs as SLs for this Phase 2 Interim Action is expected to fully address metals soil contamination on the Property. As a result, soil remediation for metals is expected to be complete after this interim action and redevelopment will not preclude soil remediation.

COIs are substances that have been detected on the Site as a result of past operations or activities that are of interest to protect human health and the environment. Proposed constituents of concern (COCs) will be identified in the RI/FS. Final COCs and indicator hazardous substances will be established in the Cleanup Action Plan.

The draft SRIWP identifies proposed COIs for multiple media at the Site. This IAWP addresses soil impacts on the Property and off Property in the ROW ditch. The following soil COIs have been identified based on at least one detection over a PCUL (Appendix A):

- Metals (aluminum, antimony, arsenic, cobalt, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, selenium, and zinc)

These metal compounds are associated with the dross waste generated and handled on the Property. Selenium is not carried forward as a COI since it has not been detected in dross samples (Appendix A) and analytical quantification of selenium is sensitive to the presence of chloride. The only two exceedances of the selenium PCUL at B-4-15 and B-6-15 had chloride concentrations of 309 and 183 mg/kg (Table 3), respectively, well above the normal soil chloride concentrations of less than 10 mg/kg to 22 mg/kg (Table 3).

The soil COI analysis also identified the following compounds that will be further evaluated during the RI/FS and are not the focus of this IAWP. Most of the sample locations with exceedances for these compounds will be removed during the interim action (SW-1, SW-2, SW-4, and SW-8) due to metals exceedances. The remaining sample locations are associated with the TPH area outside the building footprint (B-1, B-3, B-4, and B-5).

- Non-Metals (Benzene, Toluene, Total Xylenes, Total Carcinogenic Polycyclic Aromatic Hydrocarbons, bis(2-Ethylhexyl)phthalate, Di-n-octyl Phthalate, Fluoranthene, Fluorene, Naphthalene, 2-Methylnaphthalene, 4-Methylphenol, Pyrene).

3.3 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination at the Site.

3.3.1 Extent of Soil Impacts

The extent of soil impacts at the Site is presented on Figure 10. Individual soil samples that exceeded the lowest PCUL – saturated soil protective of groundwater to fresh surface water quality criteria - are highlighted in Figure 10. These highlighted locations provide an overestimate of the extent of soil contamination since the analysis does not consider whether a soil sample is located in the vadose zone (where a higher PCUL may apply) or whether groundwater data empirically demonstrate that groundwater is below the PCUL and, thus, soil is protective of groundwater and surface water. In addition, compliance with PCULs determined via statistical analysis may result in individual samples remaining above the PCUL.

Soil impacts are predominantly metals associated with the presence and related erosion of the outdoor black dross waste piles. With removal of the large outdoor waste pile and the indoor waste piles (Phase 1 Interim Action), remaining soil contamination has been grouped into seven areas of concern (Area 1 through Area 7). The selection of these areas of concern incorporated whether soil impacts were present in the vadose or saturated zone as discussed in Section 4 and shown on Figure 13.

Since Ecology has determined that the ditch material is soil rather than sediment (Ecology 2024b), samples collected from ditches are referred to as soil in this IAWP. Previous reports and sample IDs often refer to these samples as sediment.

Area 1 – Former Dross Pile

This area includes soil beneath the Phase 1 Interim Action and the adjacent unnamed ditch. Sample locations with exceedances of metals SLs (i.e., the most stringent of the PCULs for each COI) are shown on Figure 10. Table 5 provides the Phase 1 Interim Action performance sampling data and Table 6 provides data for the unnamed ditch. .

Area 2 – Northeast Surface Soil Impacts

Area 2 includes two subareas containing exceedances of the metals SLs in the northeast portion of the Property. Area 2a is associated with sample location HB-5 where it appears a small volume of dross may have been placed near the former residence. There is no documentation that this material was previously removed. After site clearing activities in July 2024, Area 2a was inspected and no dross was observed. Two soil samples were collected to confirm that soil contamination was present (Table 2). Area 2b is associated with sample locations HB-1, HB-2, and HB-3 where a known former dross pile existed (MKE 1991). This pile was moved and consolidated with the large dross stockpile but these samples indicate that some soil exceedances remain. DP-5 was also advanced within Area 2b and indicated that soil impacts were limited to the upper 2.5 ft bgs. After site clearing activities in July 2024, Area 2b was inspected and distressed vegetation was observed in an area consistent with the footprint of the former dross pile. Two soil samples were collected to confirm that soil

contamination was present (Table 2). Sample locations with individual point value exceedances of SLs are shown on Figure 10, data is summarized on Tables 1 and 2.

Area 3 – Christopher Ditch

Area 3 includes those portions of Christopher Ditch that are upstream (Area 3b) and downstream (Area 3a) from the former dross pile containing exceedances of metals SLs along with localized exceedances of volatile and semi-volatile organic compounds SLs. Sample locations SW-2 (upstream), and SW-3 and SW-4 (downstream) identify impacts in this area. It is assumed that impacted soil is present throughout the former ditch alignment. The new Christopher Ditch alignment was constructed in 1987 and both the former and new ditch alignments were reportedly lined with high density polyethylene sheeting. Based on observations and previous reporting (MKE 1991), the new drainage ditch alignment does not appear to be functioning as intended with water continuing to flow in the former ditch alignment. Soil accumulated on top of the liners will be tested. The culvert and manhole located in the South 202nd cul-de-sac may also contain contaminated soil that will be addressed during the Phase 2 Interim Action. Sample locations with individual point value exceedances of SLs are shown on Figure 10, data is summarized on Table 6.

Area 4 – Stormwater Pond

The stormwater pond collected stormwater (and dross) from the paved area north of the building. Two feet of stormwater solids (dross) were removed from the bottom of the pond in 1991. Surface soil sample SED-01 collected in 2021 indicated that soil impacts, primarily metals, remain at concentrations exceeding the SLs (Table 6). A culvert was present between the stormwater pond and the ROW ditch. If this culvert remains in-place, the culvert and any solids within the culvert will be addressed during the Phase 2 Interim Action. Sample locations with individual point value exceedances of SLs are shown on Figure 10, data is summarized on Table 6.

Area 5 – Off-Property ROW Ditch

The off-Property ROW ditch received stormwater from Christopher Ditch and the stormwater pond. Ditch soil in this area contains exceedances of metals SLs and semi-volatile organic compounds SLs. Data collected from this area are provided in Tables 6 and 7 and are illustrated on Figure 12.

Area 6 – Drum Area

Area 6 includes an area in the vicinity of the former residence/office in the northern portion of the Property. During site clearing, empty drums were discovered. Most of the drums were labelled as “diesel” and the remaining drums were not labelled. Although no obvious staining was observed, surface soil samples (DA-1 through DA-5) collected on July 25, 2024 indicated low level contamination was present, primarily metals and carcinogenic and non-carcinogenic polycyclic aromatic hydrocarbons. Sample locations are shown on Figure 10 and data are summarized on Tables 2 and 3.

Area 7 – Former Holding Ponds

Area 7 includes former holding ponds that were used to dissolve and recover salt from black dross. These concrete lined holding ponds were located between the former dross pile (removed during the Phase 1 interim action) and the former building. Washed oxides were discovered within and beneath the ponds during demolition activities. Samples collected on July 25, 2024 confirmed that metals contamination was present. Sample locations are shown on Figure 10 and data are summarized on Table 2.

3.3.2 Extent of Groundwater Impacts

As discussed in Section 2.5, numerous past investigations have been completed at the site and during that work groundwater samples from monitoring wells and temporary groundwater grab samples from direct push boring locations have been collected at the Property. Groundwater data for direct push and monitoring well samples are summarized in Tables 8 and 9, respectively. Groundwater sampling locations are shown on Figure 9 and the extent of groundwater contamination is shown on Figure 11.

Groundwater exceeds PCULs for TPH-diesel and TPH-oil, chloride, fluoride, and total metals (aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, zinc). PCUL exceedances for benzo(a)pyrene and 1-methylnaphthalene were also detected in reconnaissance groundwater samples in 2016 in the area of the former UST.

TPH-diesel exceedances and TPH-oil exceedances (without silica gel cleanup) are present in the paved area north of the large building, based on reconnaissance grab groundwater samples collected from borings DPT-1, DPT-2, and SB-UST-02. TPH at DPT-2 are likely associated with the diesel line between the former UST and the building. Per the recent Ecology silica gel guidance, location DPT-1 (downgradient of the former UST) and SB-UST-02 (downgradient of DPT-2) would also exceed screening levels based on the presence of polar organics.

Chloride, fluoride, and metals impacts are associated with leaching from the former black dross stockpile and associated operations such as the salt saver and the former oxide lagoon. Elevated specific conductance is also noted in groundwater downgradient of the stockpile due leaching of the salts. These impacts extend downgradient from the former black dross pile with arsenic, fluoride, and chloride likely extending off-Property to the north and west. A low-level arsenic exceedance (8.93 µg/L versus 8 µg/L screening level) was measured at DPT-19 across the BNSF property; however, it is not clear that this location is associated with impacts at Maralco. Iron is also present off-Property but is widespread, including cross gradient at MW-2 within the northeast portion of the Property.

The Phase 2 Interim Action does not include groundwater remediation elements. Groundwater impacts will be addressed in the DCAP upon the completion of the RI/FS.

4 Phase 2 Interim Action

The Phase 2 Interim Action includes the removal of all waste and contaminated soil remaining from the previous interim action (Phase 1) and contaminated material located within the on-Property drainage ditch system, the stormwater pond, and the off-Property ROW ditch. Soil remediation levels for this interim action, which are based on the PCULs, are identified in Table 11. The vadose zone PCULs listed in Table 11 apply to the majority of the excavation areas; however, many of the PCULs are the same for both the vadose and saturated zone and are based on natural background. The estimated extent of remaining contamination is shown on Figures 13 and 14.

Samples will be collected after removal activities to confirm that the contaminated media has been removed based on compliance to the PCULs. All soil confirmation samples will be analyzed for the following compounds associated with dross:

- Metals (aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, mercury, manganese, nickel, silver, and zinc)

Select soil confirmation samples will also be analyzed for SVOCs, PAHs, TPH-DRO/ORO, and BTEX depending on previous PCUL exceedances. Soil samples will be analyzed for SVOCs in Areas 1 and 3 (at SW sample location IDs only) and Area 4 (1 sample), for PAHs and TPH-DRO/ORO in Area 6, and for BTEX in Area 3A.
The results will be compared to the soil PCULs summarized on Table 11. If soil remains above PCULs, additional removal will be completed and new confirmation samples will be collected and analyzed to demonstrate compliance with the PCULs. Compliance with the PCULs will be based on statistical analysis consistent with WAC 173-340-740(7) and Statistical Guidance for Ecology Site Managers (Ecology 1992). Confirmation sampling is further discussed in Section 5.

Excavated soil will be disposed of at the Waste Management Columbia Ridge Landfill in Arlington, Oregon. Prior to transport and disposal, all applicable landfill approvals will be obtained. Waste will be shipped either via containers that will be picked up and transported to a transload facility for rail shipment to the landfill or via dump trucks and trailers that will transport contaminated media to a transload facility or directly to the landfill. Transport will be determined by the contractor selected to execute the work. Section 4.6 provides additional detail regarding the removal actions and management of contaminated soil.

4.1 Removal Area Descriptions

The removal areas are described in the following subsections.

4.1.1 Area 1 – Former Dross Pile

The extent of the proposed removal area for Area 1 is illustrated on Figure 13 (green shaded areas). This removal area includes Phase 1 performance sampling grid cells, the adjacent unnamed ditch, and buried dross identified during the Phase 1 Interim Action. Soil removal within Area 1 will be focused in the vicinity of samples containing the highest concentrations of COIs. Removal depths will vary between about 1 and 3 feet for a total excavation volume of about 2,400 cy.

4.1.2 Area 2 – Northeast Surface Soil Impacts

Area 2 will include removal and disposal of residual soil contamination located in the northeastern portion of the Property (Areas 2a and 2b; Figure 13). The removal depth in both subareas will be about 2 feet for an estimated removal volume of 700 cy.

4.1.3 Area 3 – Christopher Ditch

Areas 3a and 3b will include removal and disposal of contaminated soil from the old Christopher Ditch alignment located both upstream and downstream of the former dross pile and material that has accumulated in the culvert and manhole under the South 202nd Street cul-de-sac; the culvert will remain in service after site development. Soil that has accumulated on the plastic liners in the former and new Christopher Ditch alignment will also be removed and disposed of, if necessary. The new Christopher Ditch alignment does not appear to have successfully re-routed drainage (MKE 1991); as a result, extensive soil impacts are not anticipated in this portion of the ditch.

The estimated removal depth in the former ditch alignment is 1.0 foot for a removal volume of about 320 cy.

4.1.4 Area 4 – Stormwater Pond

Area 4 will include removal and disposal of soil from the former stormwater pond (Figure 13). If present, the culvert located between the pond and the ROW ditch and any contained material will also be removed and disposed of. Based on an excavation depth of 1 foot, the excavation volume is estimated at 100 cy.

4.1.5 Area 5 – Off-Property ROW Ditch

Area 5 will include removal and disposal of contaminated soil from the South 202nd Street ROW ditch (Figure 14). The removal depth will vary along the ditch with a maximum depth of 3.5 ft bgs with an estimated removal volume of 200 cy. The wetland will be backfilled and planted in accordance with modified approvals that are currently in process.

All IAWP work will be performed in accordance with WAC 173-340-430 and permit requirements. Appendix B includes permit documents, Appendix C contains the Health and Safety Plan (HASP), Appendix D contains the Quality Assurance Project Plan (QAPP). The Sampling and Analysis Plan (SAP) is discussed in Section 5.1 and in the QAPP.

4.1.6 Area 6 – Drum Area

Area 6 will include removal and disposal of soil from the vicinity of the former residence/office (Figure 13). Based on an excavation depth of 2 feet, the excavation volume was estimated at 100 cy.

4.1.7 Area 7 – Former Holding Ponds

Area 7 will include removal and disposal of washed oxides that were present in the ponds and soil from beneath the former holding ponds (Figure 13). Based on an excavation depth of 2 feet, the excavation volume is estimated at 160 cy.

4.2 Schedule for Implementation of the Phase 2 Interim Action

As discussed in Section 1, Interim Actions were initiated on September 27, 2024 after Ecology acceptance of the Public Review Draft IAWP but prior to completion of the public comment period and preparation of this final version of the IAWP (Ecology 2024c). On-property interim removal actions (Areas 1 to 4, 6, and 7) were completed in October 2024. The off-property (Area 5) removal action is anticipated to occur by the end of June 2025.

4.3 Permits and Notifications

This interim action will be conducted with oversight from Ecology and will need to satisfy the permit requirements of local, state, and federal agencies, including the City of Kent and the United States Army Corps of Engineers (USACE) for work in the wetlands and streams. An access agreement with the City of Kent will be required for removal in Area 5, the off-Property ROW Ditch. Appendix B includes approved permits and permit application documents filed with Ecology's Water Quality Program (Stormwater Pollution Prevention Plan), King County (Industrial Stormwater Discharge), City of Kent, and USACE.

All work will be conducted consistent with the Project's Cultural and Archaeological Resources Monitoring & Unanticipated Discovery Plan (TRC 2023).

The contractor will be responsible for complying with all local, state, and federal laws. Additional permits or notifications may be required if conditions change during construction from what is listed in this work plan.

4.4 Health and Safety

All work associated with this interim action will require workers that come into direct contact with contaminated waste and soil to be trained in accordance with Occupational Safety and Health Act (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) and Washington State Department of Labor and Industries training requirements. Appendix C includes a site-specific HASP developed by CRETE and prepared in accordance with all

applicable regulations, including, but not limited to, OSHA, the National Institute for Occupational Safety and Health, the American Conference of Governmental Industrial Hygienists, and the United States Environmental Protection Agency (USEPA). The contractor will be responsible for developing a HASP (see Section 4.6.5) that complies with the attached HASP and all state and federal standards.

Workers involved in waste removal and/or excavation and soil handling activities shall be trained and monitored in accordance with HAZWOPER requirements, OSHA standard 29 CFR Part 1910.120 (OSHA 40-hour trained). The appropriate level of personnel training and equipment for personnel shall consider OSHA Section 1910.120(e)(3)(i) in making such a determination.

The contractor will be required to control airborne dust. Engineering controls will be used (such as misting/watering exposed soil in traffic areas and covering stockpiles) as necessary to maintain zero visual dust. If dust is visually detected at any point, work shall stop and the work practices will be altered to eliminate the generation of dust. Construction best management practices (BMPs) must be implemented to minimize generation of dust throughout all handling of contaminated materials, in accordance with applicable state and local laws, regulations, ordinances and permits.

4.5 Stormwater Pollution Prevention Plan

All work shall comply with Washington Water Pollution Control Law (Revised Code of Washington 90.48; WAC 173-216, WAC 173-220) and the National Pollution Discharge Elimination System (Clean Water Act, Section 402). All stormwater protection and stockpile BMPs shall comply with the most current version of the Stormwater Management Manual for Western Washington. Appendix B includes a Construction Stormwater Pollution Prevention Plan (SWPPP) and the Construction Stormwater Permit (No. WAR313438) . The SWPPP includes stockpile management and covering, erosion and sedimentation controls including soil track-out on trucks or equipment, and the control of stormwater and dewatering generated during construction activities.

4.6 Removal Action Implementation

Prior to executing this work, the selected contractor will determine the means and methods of completing the work to comply with this IAWP and also all applicable laws, permits and other requirements. The contractor and the Engineer[7] will, at a minimum, discuss and agree on the following elements:

- Means and Methods (including construction sequence and schedule)
- Temporary Erosion and Sedimentation Control measures (includes Stormwater Management which will comply with the SWPPP)

[7] The Engineer for this project will be a representative from CRETE.

- Stockpile and Truck Loading
- Stabilized Surfaces
- Contractor's Site-specific Construction Health and Safety Plan (HASP)
- Contingent Actions

The following sections detail minimum requirements that the contractor shall comply with.

4.6.1 Means and Methods

Contaminated soil will be excavated from the removal areas, shown on Figures 13 and 14, using standard excavation means and methods. The initial excavation limits (horizontal and vertical), grades, and profiles are shown Figures 15 and 16 and excavation performance sampling will be performed during cleanup as discussed in Section 5 to assess compliance with the PCULs.

An Inadvertent Discovery Plan (IDP) was prepared to provide direction to the contractor and Engineer regarding excavation observation for culturally or historically significant items and procedures for contacting the project archaeologist in the event a potential observation has been made. A copy of the IDP will be kept onsite for the duration of the project.

Contaminated soil will be disposed at a Subtitle D landfill, such as Roosevelt Regional Landfill near Roosevelt, Washington or Columbia Ridge Landfill in Arlington, Oregon. Soil will be properly profiled for disposal prior to the start of excavation activities. Either existing data (collected during recent investigation and cleanup activities) will be used for profiling the soil for disposal[8] or supplemental waste characterization data may be collected if required by the receiving permitted landfill. Sampling procedures for waste characterization are provided in the QAPP in Appendix D. Truck traffic will be controlled for both volume and individual load size to ensure suitability for local roads. Loads will be kept within the frame of each truck bed and covered in conformance with Washington State Department of Transportation standards to mitigate dust emissions. The contractor will be responsible for properly covering and managing all stockpiled materials.

Based on the depths of the excavations, no shoring or groundwater dewatering will be required, other than temporary dewatering that may be needed during storm events. Excavation sidewalls will be cut as steeply as possible to remain stable during the timeframe when performance monitoring samples are being analyzed and evaluated.

4.6.2 Temporary Erosion and Sedimentation Controls

BMPs will be installed down-slope and adjacent to all disturbed areas. All BMPs will comply with the SWPPP which has been prepared with applicable portions of the Washington Department of Ecology, Stormwater Management Manual for Western Washington (Ecology 2019).

[8] This may include the use of a currently approved waste profile on file for recent investigative waste disposal.

The contractor shall not clear, grub, grade, or perform any earthwork until the following has been installed per plans or as directed by the Engineer:

- Silt fence or other perimeter controls are in place.
- Areas not to be disturbed are delineated with safety fence.
- All off-site water conveyed through Property ditches will be re-routed around the work area
- All construction entrances are stabilized and tire wash systems in place.
- Catch basin inserts are installed in all catch basins that receive drainage from the site.
- Materials are on hand in quantities sufficient to cover all bare soil, divert all flows, contain all sediments, and prevent turbid discharges from the site during all stages of construction. These materials include, but are not limited to:
  - Plastic sheeting
  - Straw
  - Drain pipe
  - Sand bags.

4.6.3 Stockpile and Truck Loading Areas

The contractor shall determine the location and design of stockpile areas, if required. These areas may be moved based on the sequence of work. The contractor may choose to use existing project features such as paved areas or building foundations for placement of stockpiles. Any stockpile area is required to provide the following:

- Surge capacity to ensure that offsite hauling does not delay soil excavation.
- Contractor flexibility to excavate soils during off-hours when trucks may not be present onsite.
- Gravity drainage of wet soil, if present, excavated from the ditches. Any drained water will be captured and treated before being discharged. Untreated captured water will not be allowed to infiltrate back into the ground.

Truck loading will occur within the stockpiling areas if the contractor is not direct loading. Truck loading and associated decontamination will occur, to the maximum extent possible, by confining trucks to a clean surface (pavement or gravel roadway), where the wheels and chassis do not come into contact with any soil. Visual inspection and limited brushing would be an appropriate level of decontamination for this approach.

The proposed erosion control BMPs for the stockpile and truck loading areas will be determined by the contractor and will comply with all applicable laws and permits, including the Construction Stormwater Permit (No. WAR313438; included in Appendix B). BMPs will likely include:

- Installation of a berm or other controls to prevent run-on or run-off
- Installation of Ecology blocks along three sides of the stockpile areas

- Decontamination of trucks and tires will be performed prior to trucks exiting the site to prevent track-out of impacted soil. Decontamination will include visual inspection and brushing or a wheel wash, as needed.
- Stockpiling on impermeable surfaces, such as concrete, asphalt, or plastic sheeting, or on contaminated soil that is scheduled for removal.
- Covering with plastic sheeting during lengthy periods of inactivity or periods of rain to prevent moisture from entering the stockpiles and to minimize dust and odor.
- All export loads of contaminated soil shall be securely covered before leaving the site.

Stormwater controls, such as berms or swales, will be installed, within the limits of the work area to avoid any stormwater runoff from the Exclusion Zone,[9] and to avoid any stormwater run-on into the Exclusion Zone. If truck wheel washing is used, water from wheel washing will be maintained separate from other impacted water and will be shipped to an offsite treatment and disposal facility unless the construction water treatment system is designed to treat for metals.

4.6.4 Stabilized Surfaces

Cleanup actions will be followed closely by development activities. Soil will be stabilized (exposed surfaces will be protected from erosion by either the placement of straw, gravel, or plastic), as needed, in any removal areas that are not immediately addressed by development activities. Final surfaces will be constructed during development.

Perimeter fencing in accessible areas will also be maintained during the interim stabilization period to limit Property access.

4.6.5 Health and Safety Plan

As noted in Section 4.4, the contractor shall have a health and safety plan prior to commencing on-site activities. OSHA forty-hour HAZWOPER training, with current annual 8-hour refresher, will be required for all onsite workers with the exception of truck drivers and surveyors (unless their activities require potential exposure to impacted materials). Truck drivers will receive orientation on the Site-Specific Construction HASP; no other health and safety training will be required, provided that all out-of-cab activities are restricted to covering of loads, necessary vehicle inspections, and signing of manifests. Detailed health and safety training requirements, and details on how the contractor will comply with OSHA standards, will be included in the Construction HASP.

The Washington Industrial Safety and Health Act (WISHA; WAC 296-155) sets safety standards for construction. This code specifies health and safety standards for responding to releases or substantial threats of release of hazardous substances at hazardous waste sites. WISHA requirements are generally more stringent than OSHA requirements. All cleanup

[9] The Exclusion Zone is the area containing contamination and has the highest potential for exposure to hazardous substances. See Section 5.1 of the HASP in Appendix C for more information.

activities will adhere to WISHA standards. Detailed health and safety training requirements, and details on how the contractor will comply with WISHA standards, will be included in the Construction HASP.

Air quality requirements for workers are governed by OSHA and ambient air quality requirements for the Puget Sound region are governed by the Puget Sound Clean Air Agency (PSCAA). PSCAA Regulation I include criteria for visual emissions, suspended particulates less than 10 microns in diameter, and carbon monoxide. No visual dust will be permitted during any work activities. If visual dust occurs, engineering methods will be used – such as wetting – for dust suppression. The Contractor will determine the means and methods for dust suppression. Contaminant air monitoring (for metals analysis) was performed during the Phase 1 interim action and no exceedances were observed; thus, no additional air sampling for metals analysis will be conducted. Air monitoring data presented in the Interim Action Cleanup Report[10] for the Phase 1 activities is included as Appendix A of the draft SRIWP, currently in review and pending Ecology approval.

4.6.6 Contingent Actions

The extent of the cleanup actions in this IAWP has been defined based on past site investigation and environmental sampling; however, unforeseen environmental conditions may arise. Equipment operators will be instructed to use the following criteria to alert the Engineer of potential issues of previously unidentified contamination at the Property. These criteria include, but are not limited to, the following:

- The presence of dross material.
- The presence of buried pipes, conduits, tanks, or unexplained metallic objects or debris.
- Materials with a granular texture that suggests industrial origin.
- White, chalky compounds or fine particulate soil layers.
- The presence of gasoline- or oil-like vapor or odor or the obvious petroleum staining, sheen, or colored hues in soil or standing water.

Any criteria identified by on-site personnel will be evaluated, Ecology will be notified, and a plan will be developed for sampling the potential contamination, as appropriate, to properly characterize and manage the material in accordance with state and federal regulations.

4.7 Backfilling and Off-Property Restoration

Completion of the on-Property portions of the interim action (Areas 1 through 4) will allow grading to proceed for redevelopment. Backfilling will be completed during redevelopment prior to building construction using clean imported material. Figure 8 shows the Property development plan. Project backfill will be suitable fill for the planned development.

[10] The February 6, 2024 Interim Action Cleanup Report can be found on the Ecology's Cleanup Site Website at the following link: https://apps.ecology.wa.gov/cleanupsearch/document/136646

Import material will be sourced from a commercial quarry or gravel pit. It will be naturally occurring and not contain recycled material of any type. If import soil is proposed to come from another property, Ecology will be consulted, and the import material will be tested to verify that it is acceptable. No material from the Maralco Site, including residual dross and soil, removed during the interim action will be used as fill.

The off-Property ROW ditch soil removal area (Area 5) is located in Wetland C. Upon completion of the interim action, Area 5 will be restored in compliance with USACE Permit No. NWS-2022-778 requirements. Restoration plans are included with the USACE permit in Appendix B.

5 Compliance Monitoring Plan

Compliance monitoring is one of the general requirements for cleanup actions under MTCA (WAC 173-340-360(3)(a)(vi)) and confirms the long-term effectiveness of the interim action. This compliance monitoring plan is designed in accordance with WAC 173-340-410.

The three types of compliance monitoring are described below:

- **Protection Monitoring -** Monitoring during implementation of the interim action will ensure that human health and the environment are protected during construction. This monitoring will be performed in compliance with a health and safety plan and local permits. Protection monitoring will include monitoring the construction workers during excavation activities and air monitoring to ensure that dust and particulates are not migrating out of the work area.
- **Performance Monitoring -** Performance monitoring is used to confirm that the cleanup action has attained the cleanup standards or remediation levels, or other performance criteria such as construction quality control measurements or monitoring necessary to demonstrate compliance with permits. For the selected remedy, performance monitoring would verify that wastes comply with specific acceptance criteria for the waste disposal facility and that contaminated soil have been removed and the remaining surface is below remediation levels (Table 11).
- **Confirmation Monitoring -** Confirmation monitoring is designed to confirm the long-term effectiveness of the interim action once cleanup standards, remediation levels, or other performance standards have been attained. Final performance soil samples that demonstrate compliance with the cleanup standards will be considered confirmation samples.

Performance monitoring and confirmation monitoring, as applied to the interim action, are discussed in the SAP (Section 5.1). Protection monitoring is included in the HASP (Appendix C). Compliance monitoring will conform to WAC 173-340-740(7).

5.1 Sampling and Analysis Plan (SAP)

The purpose of this SAP is to provide requirements for collecting and analyzing performance and compliance monitoring samples to demonstrate the IAWP has achieved cleanup standards and confirm long-term effectiveness. Performance and confirmation monitoring will occur in the removal area grid cells shown on Figure 17. The locations and required analyses for the samples are based on the information presented in Section 4. Sampling in these areas is summarized below:

- Area 1: Grab soil samples will be collected from within excavated areas on a 50 ft by 50 ft grid. Grab soil sample locations will be assigned within each grid cell as close as possible to previous soil samples that had contained PCUL exceedances, with at least one soil sample collected per grid cell. Soil samples will be collected at the bottom of the shallow excavation footprint.
- Area 2: Similar to Area 1, grab soil samples will be collected on a 50 ft by 50 ft grid. The location of the samples will be as close as possible to previous samples that had contained PCUL exceedances. Additional sample locations will be determined randomly. At least one soil sample will be collected per grid cell.
- Area 3: Similar to Area 1, grab soil samples will be collected on a 50 ft by 50 ft grid. The location of the samples will be determined randomly, except for three of the samples which will be collected as close as possible to previous sample locations SW-2, SW-3, and SW-4 where exceedances of the PCULs were detected. In the culvert and manhole, no performance samples will be collected in this area as this is a preventative measure to remove any residual source that may have accumulated within the culvert. Once removal is completed, no material will remain to sample.
- Area 4: Similar to Area 1, grab soil samples will be collected on a 50 ft by 50 ft grid. One of the samples will be collected as close as possible to previous sample location SED-01. The location of other samples will be determined randomly.
- Area 5: Similar to Area 1, grab soil samples will be collected on a 50 ft by 50 ft grid. Sample locations will be as close as possible to previous samples that had contained PCUL exceedances, with at least one sample collected within each grid cell.
- Area 6: Similar to Area 1, grab soil samples will be collected on a 50 ft by 50 ft grid. The location of samples will be determined randomly.
- Area 7: Grab soil samples will be collected from each half of the removal footprint. One sample will also be collected from soil beneath the washed oxides that were removed from the ponds. The location of samples will be determined randomly.

Soil samples will be analyzed for soil COIs which include:

- Metals (aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, mercury, manganese, nickel, selenium, silver, and zinc)

Sampling procedures, analyses, and data quality assurance are included in the QAPP (Appendix D). Specifically, the QAPP includes the following SAP elements:

- Organization and responsibilities for the sampling and analysis activities;
- Project schedule;
- Procedures for sample collection and handling, including procedures for personnel and equipment decontamination;
- Description and number of quality assurance and quality control samples, including blanks and spikes;

- Protocols for sample labeling and chain of custody; and
- Procedures and analytical methods for analysis of samples and reporting of results.

Any excess soil generated during sampling efforts will be managed as contaminated site soils and disposed of with other site soils. All single-use and disposable sampling and personal protective equipment will be collected and disposed of off the Property. No split samples are expected for this effort. No sampling devices will be installed for this scope of work.

5.2 Compliance with Cleanup Standards

The confirmation soil sampling data set for excavations performed in each Area will be evaluated for compliance with the PCULs using statistical analysis in accordance with the MTCA three-part rule defined in WAC 173-340-740(7), as follows:

- The 95% upper confidence limit (UCL) on the sample mean may not exceed the soil PCUL.
- No sample may exceed two times the PCUL, except where modifications are allowed (as explained below).
- Less than 10% of the samples may exceed the PCUL, except where modifications are allowed (as explained below).

For PCULs that are based on natural background concentrations, the two requirements concerning sample exceedances within the statistical data set, as set forth in WAC 173-340-740(7)(e)(i) and (ii), may be modified as approved by Ecology to control false positive error rates at 5%. Specifically, the exceedance factor may be increased above 2 and the percentage of samples exceeding the PCUL may be 10% or more, consistent with the procedures outlined the Statistical Guidance for Ecology Site Managers (Ecology 1992).

The second part of the three-part rule represents an objective decision-making step. If the allowable exceedance factor is exceeded in any sample, the excavation area will be expanded to remove the soil associated with the sample. New data will be collected at the bottom of the expanded portion of the excavation. These new data will replace the data representing the excavated soil, and the statistics for each COI will be recalculated. If either of the other two parts of the three-part rule are exceeded, additional excavation will be performed to remove the highest remaining concentrations and new data will be collected from the expanded area to replace the excavated sample(s). The statistics will again be re-evaluated and this process will continue until all parts of the three-part rule will be met.

6 Post Interim Action Reporting

Once the Phase 2 Interim Action is complete, a completion report will be prepared documenting interim action activities, sampling, and results per WAC 173-340-400. The report will include:

- A description of the interim action work completed, including observed conditions of waste removed, volume of excavated soil, backfilling and restoration, waste characterization results, and confirmation sampling and results.
- A description of the samples collected, including sample locations and methods, sample analyses performed, analytical results and assessment, and chain of custody records.
- Tables summarizing sample results, including performance and confirmation sample results.
- Drawings showing post-interim action site conditions, including vertical and lateral extents of excavations, and performance and confirmation sample locations.
- Progress photos collected during the interim action.
- Backup documentation including analytical laboratory reports, data validation reports, and waste disposal documentation.

The draft report will be submitted to Ecology within 90 days of completion of the interim actions. Any comments provided by Ecology on the draft report will be addressed in a final completion report, which will be submitted to Ecology within 45 calendar days of receipt of final comments on the document.

Ecology will be notified of the completion of redevelopment and a final as-built showing site surfaces will be submitted to Ecology. This work is expected to occur concurrently with the RI/FS, and reporting may overlap with the RI/FS efforts.

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Tables

Table 1 - Prior to 2016 Soil Data Summary
Maralco Site - Kent, WA

Analyte (mg/kg)				Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Manganese	Nickel	Selenium	Selenium	Silver	Zinc	VOCs	PAHs
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)				33,000	5.2	7.3	820	63	0.77	1500	36	250	0.07	1,200	68	0.78	0.78	0.61	130	varies	varies
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)				33,000	5.2	7.3	250	3.2	0.77	74	36	24	0.07	1,200	48	0.78	0.78	0.61	85	varies	varies
HB-1	1.5-2	05/09/90	vadose	12,800	0.2 N	1	33	NA	0.2 U	12.4 N	24.1	1.7	0.04 U	141	9	0.5 NU	0.5 NU	0.3 U	27.9	NA	NA
HB-2	1.5-2	05/09/90	vadose	19,700	0.2N	1.9	50.6	NA	0.2U	26.3 N	91.8	6.2	0.05 U	209	12	0.6 NU	0.6 NU	0.2 U	67.8	NA	NA
HB-3	1.5-2	05/09/90	vadose	13,000	0.1 N	1.6	39.1	NA	0.2U	12.4 N	35.2	2.3	0.04 U	151	9	0.6 NU	0.6 NU	0.3 U	34.3	NA	NA
HB-4	0-1	09/11/90	vadose	5,920	NA	NA	30.5	NA	NA	62.6J	14.7B	3.2J	NA	137	NA	NA	NA	NA	23.2	NA	NA
HB-4	2-3	09/11/90	vadose	5,280	NA	NA	26.7	NA	NA	90.8J	14.6B	2U	NA	91	NA	NA	NA	NA	17.4	NA	NA
HB-5	1-2	09/11/90	vadose	5,380	NA	NA	28.5	NA	NA	68.2J	14.7B	2.7J	NA	114	NA	NA	NA	NA	23.9	NA	NA
HB-6	0-1	09/11/90	vadose	8,250	NA	NA	42.3	NA	NA	41.5J	18B	9.9J	NA	175	NA	NA	NA	NA	29.5	NA	NA
HB-6	2-3	09/11/90	vadose	7,530	NA	NA	41.9	NA	NA	17.5J	19.4B	2J	NA	157	NA	NA	NA	NA	20.6	NA	NA
HB-11	2.5-4	09/10/90	vadose	4,930	NA	NA	12.3	NA	NA	107J	25.6B	2U	NA	62.2	NA	NA	NA	NA	18	NA	NA
HB-14	0-1	09/12/90	vadose	9,130	NA	NA	54.8	NA	NA	26.6J	20.3B	16	NA	223	NA	NA	NA	NA	45.1	NA	NA
HB-14	2-3.3	09/12/90	vadose	5,080	NA	NA	26.9	NA	NA	54.2J	22.6B	2.5J	NA	90.6	NA	NA	NA	NA	16.9	NA	NA
HB-14 (Duplicate)	2-3	09/12/90	vadose	5,710	NA	NA	30.2	NA	NA	11.8J	11.4B	3.4J	NA	107	NA	NA	NA	NA	18.8	NA	NA
HB-15	0-0.5	09/11/90	vadose	8,240	NA	NA	43.2	NA	NA	20.1J	26.5B	8.1J	NA	183	NA	NA	NA	NA	32.7	NA	NA
HB-15	2-3	09/11/90	vadose	7,290	NA	NA	38	NA	NA	35.6J	21.6B	5.1J	NA	134	NA	NA	NA	NA	36.3	NA	NA
HB-16	0-1	09/12/90	vadose	9,810	NA	NA	56.1	NA	NA	28.2J	21B	15.3	NA	269	NA	NA	NA	NA	39.2	NA	NA
HB-16	2-3	09/12/90	vadose	5,880	NA	NA	27	NA	NA	80.6J	14.7B	2U	NA	113	NA	NA	NA	NA	19.1	NA	NA
MW-1	3.0-4.0	09/25/90	vadose	13,700	NA	NA	55.8 N	NA	NA	15.4 N	21.3 N	2.97	NA	157 N	NA	NA	NA	NA	27.3 N	see Note 1	see Note 2
MW-1	6.0-7.5	09/25/90	saturated	14,000	NA	NA	56.6 N	NA	NA	20.9 N	22.6 N	2.8	NA	180 N	NA	NA	NA	NA	30.0 N	see Note 1	see Note 2
MW-1	12.0-13.5	09/25/90	saturated	14,700	NA	NA	64.4 N	NA	NA	17.8 N	28.5 N	3.04	NA	128 N	NA	NA	NA	NA	31.5 N	see Note 1	see Note 2
MW-1	15.0-16.5	09/25/90	saturated	9,390	NA	NA	36.4 N	NA	NA	14.0 N	17.7 N	1.85	NA	95.2 N	NA	NA	NA	NA	25.1	see Note 1	see Note 2
MW-2	2.0-3.0	09/25/90	vadose	10,800	NA	NA	43.2 N	NA	NA	21.5 N	16.6 N	2.03	NA	161 N	NA	NA	NA	NA	2.0 N	see Note 1	see Note 2
MW-2	6.4-7.5	09/25/90	vadose	10,300	NA	NA	40.0 N	NA	NA	16.8	14.5 N	1.83	NA	105	NA	NA	NA	NA	23.2 N	see Note 1	see Note 2
MW-2	10.-12.0	09/25/90	saturated	8,590	NA	NA	37.3 N	NA	NA	17.9 N	15.3 N	1.94	NA	135 N	NA	NA	NA	NA	23.7 N	see Note 1	see Note 2
MW-2	15.5-16.5	09/25/90	saturated	22,900	NA	NA	88.2 N	NA	NA	24.3 N	54.1 N	4.26	NA	396 N	NA	NA	NA	NA	38.5 N	see Note 1	see Note 2
MW-3	3.0-4.5	09/24/90	vadose	13,500	NA	NA	45.7 N	NA	NA	38.4 N	18.3 N	2.03	NA	148 N	NA	NA	NA	NA	22.9 N	see Note 1	see Note 2
MW-3 (Duplicate)	3.0-4.5	09/24/90	vadose	13,400	NA	NA	51.9 N	NA	NA	27.7 N	21.4 N	2.29	NA	172 N	NA	NA	NA	NA	25.4 N	see Note 1	see Note 2
MW-3	6.5-7.5	09/24/90	saturated	31,800	NA	NA	124 N	NA	NA	29.4 N	38.6 N	5.88	NA	222	NA	NA	NA	NA	53.8 N	see Note 1	see Note 2
MW-3	12.5-13.5	09/24/90	saturated	17,100	NA	NA	65.3 N	NA	NA	30.0 N	20.3 N	2.47	NA	177 N	NA	NA	NA	NA	31.4 N	see Note 1	see Note 2
MW-3	15.0-16.5	09/24/90	saturated	15,300	NA	NA	70.2 N	NA	NA	24.3 N	25.0 N	3.09	NA	204 N	NA	NA	NA	NA	34.3 N	see Note 1	see Note 2
MW-4	1.5-3.0	09/24/90	vadose	17,100	NA	NA	40.7 N	NA	NA	26.6	22.6 N	2.67	NA	122 N	NA	NA	NA	NA	29.3 N	see Note 1	see Note 2
MW-4	4.5-6.0	09/24/90	vadose	18,200	NA	NA	62.7 N	NA	NA	27.9 N	20.6 N	2.48	NA	131 N	NA	NA	NA	NA	32.6 N	see Note 1	see Note 2
MW-4	9.0-10.5	09/24/90	vadose	21,800	NA	NA	86.1 N	NA	NA	34.3 N	34.5 N	3.92	NA	250 N	NA	NA	NA	NA	40.7 N	see Note 1	see Note 2
MW-4	12.0-13.5	09/24/90	vadose	9,770	NA	NA	25.8 N	NA	NA	55.5 N	10.7 N	1.23	NA	106 N	NA	NA	NA	NA	22.4 N	see Note 1	see Note 2
MW-5	5 ft bgs	01/22/03	vadose	NA	NA	NA	NA	NA	NA	NA	NA	18*	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	10 ft bgs	01/22/03	saturated	NA	NA	NA	NA	NA	NA	NA	NA	ND*	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	15 ft bgs	01/22/03	saturated	NA	NA	NA	NA	NA	NA	NA	NA	13.9*	NA	NA	NA	NA	NA	NA	NA	NA	NA
DP-2	3 ft bgs	02/04/03	vadose	1,400	NA	5 U	NA	NA	NA	1 U	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
DP-3	3 ft bgs	02/04/03	vadose	2,000	NA	5 U	NA	NA	NA	1 U	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
DP-4	3 ft bgs	02/04/03	vadose	2,300	NA	5 U	NA	NA	NA	1 U	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
DP-5	1 ft bgs	02/04/03	vadose	NA	NA	ND*	NA	NA	NA	ND*	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
DP-5	2.5 ft bgs	02/04/03	vadose	1,400	NA	5 U	NA	NA	NA	1 U	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
Data Associated with Dross Samples or in Areas of Past Removals																					
HB-1	0-0.5	05/09/90	vadose	138,000	1.79 N	3	133	NA	0.7	83 N	713	55	0.04 U	1,220	24	0.6 NU	0.6 NU	0.4 U	442	NA	NA
HB-2	0-0.5	05/09/90	vadose	150,000	5.4N	6.2 U	123	NA	1.5	167 N	17,100	160	0.04 U	1,530	71	0.6 NU	0.6 NU	1.8 B	2,660	NA	NA
HB-3	0-0.5	05/09/90	vadose	165,000	8.0 N	6.6	125	NA	1	228 N	1,480	128	0.06 U	2,340	59	0.7 NU	0.7 NU	0.7	1,030	NA	NA
HB-5	0-0.2	09/11/90	vadose	153,000	NA	NA	69.5	NA	NA	72.5J	708	77.9	NA	1,320	NA	NA	NA	NA	476	NA	NA
HB-7 (Removed)	0.5-1.3	09/11/90	vadose	99,000	NA	NA	115	NA	NA	111J	1220	275	NA	693	NA	NA	NA	NA	999	NA	NA
DP-1 (Removed)	1 ft bgs	02/04/03	vadose	3,000	NA	5 U	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DP-2 (Removed)	1 ft bgs	02/04/03	vadose	NA	NA	ND*	NA	NA	NA	ND*	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
DP-3 (Removed)	1 ft bgs	02/04/03	vadose	NA	NA	ND*	NA	NA	NA	ND*	NA	ND*	ND*	NA	NA	NA	NA	NA	NA	NA	NA
HB-11 (Removed)	0-0.75	09/10/90	vadose	55,000	NA	NA	81.2	NA	NA	66J	1,490	100	NA	488	NA	NA	NA	NA	336	NA	NA
HB-12 (Removed)	1-1.5	09/10/90	vadose	179,000	NA	NA	80	NA	NA	165J	1,760	128	NA	2,390	NA	NA	NA	NA	1,240	NA	NA
HB-13 (Removed)	1.5-2.5	09/10/90	vadose	198,000	NA	NA	125	NA	NA	2.36J	3,040	209	NA	1,090	NA	NA	NA	NA	2,700	NA	NA

Notes:
Bold - analytes detected
All results ae in mg/kg - milligrams per kilogram
Reported concentration exceeds the Vadose Zone PCUL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated PCUL
NC - no criterion
U - not detected above listed laboratory reporting limits
ND - not detected (detection limits not reported)
ft bgs - feet below ground surface
PCUL - Preliminary Cleanup Level
NA - not analyzed
N - Laboratory Instrument Recovery not within control limits
B - compound detected in blank (sample value is less than 10 times that value)
J - estimated value
*Analyzed by X-ray fluorescence (XRF)

Note 1: Volatile Organic Compounds (VOCs) were analyzed are reported in the Morrison-Knudsen Environmental Services, Draft Phase I Remedial Investigation Report, Maralco Site. Kent, WA. All results were ND except for 2-butanone at MW-2 and MW-3 (21J ug/kg max)) and acetone which was flagged as a tentatively identified compound (TIC) in all samples. Samples were also analyzed for calcium, potassium, and sodium
Note 2: Polycyclic aromatic hydrocarbons (PAHs) were analyzed and reported in the Morrison-Knudsen Environmental Services, Draft Phase I Remedial Investigation Report/ All results were ND except for perylene which was flagged as TIC in all samples analyzed.

Table 2 - Metal Soil Data Detected Compounds Summary (Outside of Dross Pile Footprint)
Maralco Site - Kent, WA

		Aluminum	Iron	Barium	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Nickel	Silver	Zinc	Mercury	Selenium
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)		**33,000**	**36,000**	**820**	**5.2**	**7.3**	**0.77**	**1500**	**11**	**36**	**250**	**68**	**0.61**	**130**	**0.07**	**0.78**
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)		**33,000**	**36,000**	**255**	**5.2**	**7.3**	**0.77**	**74**	**11**	**36**	**24**	**48**	**0.61**	**85**	**0.07**	**0.78**
Sample ID and Sample Depth (ft bgs)	**Date**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
MW3A (5')	7/21/17	**7,800**	NA	5 U	NA	**1.1**	1 U	**1.2**	NA	NA	1 U	NA	NA	NA	0.5 U	2 U
MW4A (6.5')	7/21/17	**5,600**	NA	5 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	NA	0.5 U	2 U
MW6 (6.5')	7/21/17	**9,700**	NA	5 U	NA	**1.6**	1 U	**4**	NA	NA	**1.6**	NA	NA	NA	0.5 U	2 U
DPT-1 5-6′	5/24/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14 5-7.5'	8/29/22	**4,340**	**7,910**	NA	1 U	**2.63**	1 U	**6.57**	**2.25**	**7.43**	**1.99**	**5.05**	1 U	**16.9**	NA	NA
DPT-14 10-11.5'	8/29/22	**6,980**	**11,500**	NA	1 U	1 U	1 U	**5.99**	**2.18**	**7.27**	**1.10**	**4.36**	1 U	**15.6**	NA	NA
DPT-15 5-6.5'	8/29/22	**4,720**	**8,700**	NA	1 U	**2.05**	1 U	**9.15**	**2.63**	**10.1**	**1.17**	**5.25**	1 U	**16.5**	NA	NA
DPT-15 8.5-10'	8/29/22	**2,640**	**2,960**	NA	1 U	**5.09**	1 U	**6.52**	**7.14**	**15.2**	**2.14**	**8.96**	1 U	**22.6**	NA	NA
DPT-16 6.5-8'	8/30/22	**3,380**	**841**	NA	1 U	**1.17**	1 U	**8.37**	**2.69**	**7.00**	**1.10**	**4.91**	1 U	**15.1**	NA	NA
DPT-16 10-11.5'	8/30/22	**5,260**	**9,480**	NA	1 U	**1.51**	1 U	**5.49**	**2.95**	**7.92**	**1.37**	**5.12**	1 U	**14.2**	NA	NA
DPT-17 5.5-8'	8/30/22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-18 5-7.2'	8/30/22	**5,010**	**6,490**	NA	1 U	**2.48**	1 U	**10.0**	**3.64**	**13.0**	**4.04**	**9.26**	1 U	**23.7**	NA	NA
DPT-18 14-15'	8/31/22	**5,130**	**6,520**	NA	1 U	**1.26**	1 U	**7.89**	**3.52**	**10.8**	**1.63**	**5.85**	1 U	**18.5**	NA	NA
DPT-19 6-8'	8/31/22	**16,900**	**16,900**	NA	1 U	**3.32**	1 U	**11.8**	**6.42**	**24.2**	**3.73**	**11.1**	1 U	**38.1**	NA	NA
DPT-19 12.5-15'	8/31/22	**7,410**	**8,030**	NA	1 U	**2.09**	1 U	**10.0**	**4.34**	**16.6**	**2.84**	**8.24**	1 U	**23.3**	NA	NA
DPT-20 6.5-7.5'	8/31/22	**13,200**	**16,600**	NA	1 U	**4.13**	1 U	**12.3**	**5.73**	**23.5**	**4.22**	**11.2**	1 U	**33.8**	NA	NA
DPT-20 13.5-15'	8/31/22	**7,930**	**10,500**	NA	1 U	**2.33**	1 U	**11.8**	**4.54**	**19.5**	**2.55**	**12.8**	1 U	**24.5**	NA	NA
DPT-21 6-10'	8/31/22	**4,990**	**8,150**	NA	1 U	**1.84**	1 U	**10.2**	**3.19**	**11.0**	**2.79**	**6.01**	1 U	**54.1**	NA	NA
DPT-21 11.5-14'	8/31/22	**5390**	**8220**	NA	1 U	1 U	1 U	**8.02**	**3.21**	**10.1**	**1.46**	**6.25**	1 U	**18.7**	NA	NA
DUP01-220831		**3690**	**5520**		1 U	**1.14**	1U	**8.51**	**3.37**	**11.7**	**1.56**	**6.63**	1 U	**20.0**		
DPT-22 3.5-5'	8/31/22	**10,400**	**15,000**	NA	1 U	**6.91**	1 U	**12.9**	**4.94**	**22.3**	**21.7**	**12.3**	1 U	**37.0**	NA	NA
DPT-22 5-7'	8/31/22	**9,160**	**8,310**	NA	1 U	**1.64**	1 U	**10.3**	**3.66**	**20.0**	**2.54**	**7.87**	1 U	**23.6**	NA	NA
DPT-22 11-13.2'	8/31/22	**4,390**	**9,290**	NA	1 U	**3.23**	1 U	**8.39**	**3.70**	**8.74**	**1.19**	**7.24**	1 U	**17.3**	NA	NA
SB-UST-01 5-6'	8/29/22	**6,720**	**8,660**	NA	1 U	**2.05**	1 U	**9.82**	**2.99**	**12.0**	**1.80**	**6.18**	1 U	**17.2**	NA	NA
SB-UST-02 5-6'	8/29/22	**7,250**	**9,870**	NA	1 U	**2.18**	1 U	**10.7**	**4.29**	**13.6**	**2.16**	**7.98**	1 U	**20.8**	NA	NA
SB-UST-02 15-16'	8/29/22	**6,690**	**8,940**	NA	1 U	**2.83**	1 U	**9.27**	**4.51**	**19.7**	**2.66**	**8.48**	1 U	**25.7**	NA	NA
SB-UST-03 1-2'	8/29/22	**5,370**	**7,800**	NA	1 U	**7.81**	1 U	**8.57**	**4.35**	**16.7**	**13.5**	**10.1**	1 U	**28.2**	NA	NA
MW-5R 5.5-7'	8/30/22	**5,000**	**13,700**	NA	1 U	**1.52**	1 U	**6.98**	**2.15**	**7.60**	**1.09**	**4.49**	1 U	**14.2**	NA	NA
MW-5R 11-12'	8/30/22	**7,760**	**7,260**	NA	1 U	**1.93**	1 U	**8.50**	**3.18**	**14.1**	**1.96**	**6.41**	1 U	**20.4**	NA	NA
MW-7 5-7'	8/30/22	**6,920**	**22,200**	NA	1 U	**12.2**	1 U	**9.13**	**3.93**	**15.9**	**14.7**	**8.80**	1 U	**34.5**	NA	NA
MW-7 13.5-15'	8/30/22	**8,820**	**27,400**	NA	1 U	**5.27**	1 U	**8.01**	**7.01**	**23.2**	**2.62**	**9.61**	1 U	**31.6**	NA	NA
MW-8 4-5'	8/30/22	**5,340**	**7,000**	NA	1 U	**10.7**	1 U	**6.95**	**3.09**	**19.0**	**21.5**	**5.77**	1 U	**45.2**	NA	NA
MW-8 12-13'	8/30/22	**8,160**	**9,090**	NA	1 U	**2.99**	1 U	**8.61**	**4.33**	**16.5**	**2.07**	**8.46**	1 U	**22.8**	NA	NA
B-4-7	10/27/16	**9,370 O1 V**	NA	**39.6**	NA	2.34 U	**0.115 J**	**13**	NA	NA	**2.37**	NA	1.17 U	NA	**0.023 J**	2.34 U
B-4-9	10/27/16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4-15	10/27/16	**12,200**	NA	**55.7**	NA	**2.73**	**0.128 J**	**14.5**	NA	NA	**3.26**	NA	1.37 U	NA	**0.0288**	**1.41 J**
B-5-8	10/27/16	**5,730**	NA	**19.1**	NA	**3.46**	**0.0759 J**	**8.32**	NA	NA	**2.14**	NA	1.05 U	NA	0.0211 U	2.11 U
B-5-10	10/27/16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-15	10/27/16	**8,840**	NA	**42.1**	NA	2.77 U	0.692 U	**11.4**	NA	NA	**2.57**	NA	1.38 U	NA	**0.0281**	2.77 U
B-6-7.5	10/27/16	**16,600**	NA	**70.2**	NA	**2.47 J**	**0.153 J**	**18**	NA	NA	**4.35**	NA	1.31 U	NA	**0.141**	2.62 U
B-6-9.5	10/27/16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-15	10/27/16	**19,800**	NA	**52.2**	NA	**2.88 J**	**0.234 J**	**20.1**	NA	NA	**6**	NA	1.45 U	NA	**0.0163 J**	**1.11 J**
DA-1 (0.5)	7/25/24	**9,650**	**10,600**	NA	**0.32**	**4.4**	**0.33**	**8.9**	**4.3**	**15**	**34**	**7.4**	0.2 U	**40**	**0.063**	0.2 UJ
DA-2 (0.5)	7/25/24	**11,700**	**14,100**	NA	**0.81**	**13**	**0.85**	**9.4**	**4.2**	**23**	**49**	**8.3**	0.2 U	**78**	**0.10**	0.2 UJ
DA-3 (0.5)	7/25/24	**9,940**	**11,800**	NA	**0.77**	**12**	**0.54**	**8.2**	**3.9**	**18**	**37**	**7.6**	0.2 U	**65**	**0.10**	0.2 UJ
DA-4 (0.5)	7/25/24	**10,400**	**12,100**	NA	**0.40**	**5.1**	**0.52**	**8.4**	**4.0**	**22**	**39**	**6.9**	0.2 U	**59**	**0.064**	0.2 UJ
DA-5 (0.5)	7/25/24	**10,400**	**24,800**	NA	**0.40**	**5.0**	**0.68**	**7.7**	**4.5**	**23**	**21**	**8.4**	0.2 U	**210**	**0.11**	0.2 UJ
AREA2A-1 (0.5)	7/25/24	**6,870**	**9,180**	NA	**2.2**	**6.1**	**0.52**	**6.6**	**3.4**	**16**	**25**	**8.5**	0.2 U	**54**	**0.073**	**0.26**
AREA2A-2 (0.5)	7/25/24	**8,980**	**12,400**	NA	**0.53**	**6.4**	**0.39**	**8.8**	**3.7**	**19**	**28**	**7.7**	0.2 U	**50**	**0.082**	0.2 U
AREA2B-1 (0.5)	7/25/24	**11,400**	**9,540**	NA	**0.26**	**3.2**	0.2 U	**7.1**	**3.5**	**15**	**6.2**	**5.6**	0.2 U	**28**	**0.029**	0.2 UJ
AREA2B-2 (0.5)	7/25/24	**12,400**	**10,400**	NA	**0.42**	**4.5**	0.2 U	**9.2**	**3.6**	**260**	**11**	**6.0**	0.2 U	**120**	**0.18**	0.2 UJ
HP-GS-01 (0.5)	7/25/24	**27,200**	**9,380**	NA	**7.2**	**11**	**0.84**	**25**	**4.0**	**210**	**23**	**14**	0.2 U	**180**	**0.078**	0.2 U
HP-GS-02 (0.5)	7/25/24	**94,000**	**3,870**	NA	**2.8**	**5.7**	**0.26**	**15**	**4.5**	**58**	**10**	**14**	0.2 U	**55**	**0.053**	**0.23**
HP-GS-03 (washed oxides, 0.5)	7/25/24	**20,100**	**15,700**	NA	**13**	**2.5**	**4.1**	**110**	**1.9**	**1,300**	**120**	**42**	**0.57**	**1,000**	**0.20**	0.6 UJ

NOTES:
Bold - analyte detected
All results ae in mg/kg - milligrams per kilogram
U - not detected at listed reporting limit
J - estimated value
PCUL - Preliminary Cleanup Level
V - Sample concentration is too high to evaluate accurate spike recoveries.
ND - not detected
NA - not analyzed
O1 - Analyte failed the method required serial dilution test and/or subsequent post-spike criteria. This indicates matrix interference.
ft bgs - feet below ground surface
Reported concentration exceeds the Vadose Zone PCUL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated PCUL
Only detected compounds are shown.

Table 3 Non Metal Soil Data Summary - Detected Compounds Summary (Outside of Dross Pile)
Maralco Site - Kent, WA

Sample ID	Sample depth (ft bgs)	Sample Zone	Dated Collected	TPH-DRO	TPH-ORO	Chloride	Fluoride	Nitrate	Ammonia Nitrogen	Benzene	Toluene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(K)Fluoranthene	Chrysene	Dibenz(A,H)Anthracene	Indeno(1,2,3-Cd)Pyrene	Total cPAH TEQ	Benzo(G,H,I)Perylene	Fluoranthene	Naphthalene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)				2000	2000	NC	NC	128000	NC	0.0024	0.37	0.001	0.003	0.002	0.009	0.009	0.00057	0.0062	0.084	NA	0.02	4.5	0.0200	0.082	1.7
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)				2000	2000	NC	NC	128000	NC	0.0002	0.023	0.00006	0.00002	0.0001	0.0009	0.002	0.00003	0.00031	0.0042	0.005	0.001	0.24	0.0010	0.0042	0.09
B-1-5	5	vadose	10/27/16	4.4 U	11 U	NA	NA	NA	NA	NA	NA	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	ND	0.0066 U	0.0066 U	0.022 U	0.0066 U	0.022 U	0.022 U
B-1-17	17	saturated	10/27/16	5.38 U	13.5 U	NA	NA	NA	NA	**0.000522**	0.005 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	ND	0.00808 U	0.00808 U	**0.00473 J**	0.00808 U	0.0269 U	0.0269 U
B-2-4	4	vadose	10/27/16	4.61 U	11.5 U	NA	NA	NA	NA	NA	NA	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	ND	0.00692 U	0.00692 U	0.0231 U	0.00692 U	0.0231 U	0.0231 U
B-2-16.5	16.5	saturated	10/27/16	5.04 U	12.6 U	NA	NA	NA	NA	NA	NA	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	ND	0.00756 U	0.00756 U	0.0252 U	0.00756 U	0.0252 U	0.0252 U
B-3-6	6	vadose	10/27/16	45.1 U	113 U	NA	NA	NA	NA	NA	NA	**0.000687 J**	**0.000855 J**	**0.00114 J**	0.00676 U	**0.00153 J**	0.00676 U	**0.000801 J**	**0.001**	**0.00184 J**	**0.00111 J**	0.0225 U	**0.00159 J**	0.0225 U	**0.00249 J**
B-3-16	16	saturated	10/27/16	5.5 U	13.8 U	NA	NA	NA	NA	**0.000205 J**	0.005 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	ND	0.00826 U	0.00826 U	0.0275 U	0.00826 U	0.0275 U	0.0275 U
B-4-7	7	vadose	10/27/16	NA	NA	**44.4**	**5.03**	**2.25**	**15.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4-9	9	saturated	10/27/16	NA	NA	NA	NA	NA	NA	**0.00132**	**0.000476 B J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4-15	15	saturated	10/27/16	NA	NA	**309**	**2.75**	1.37 U	**5.92 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-8	8	saturated	10/27/16	NA	NA	**41.4**	**31.8**	**0.954 J**	5.27U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-10	10	saturated	10/27/16	NA	NA	NA	NA	NA	NA	**0.000604**	**0.000557 BJ**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-15	15	saturated	10/27/16	NA	NA	**4,280**	**0.544 J P1**	1.38 U	**33.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-7.5	7.5	saturated	10/27/16	NA	NA	**212**	**7.72**	1.31 U	**27.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-9.5	9.5	saturated	10/27/16	NA	NA	NA	NA	NA	NA	**0.00014 J**	0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-15	15	saturated	10/27/16	NA	NA	**183**	**35.9**	1.45 U	**9.72 J6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-1 5-6'	5-6'	vadose	5/24/21	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-2 6-7.5'	6-7.5'	saturated	5/24/21	**1,100**	250 U	NA	NA	NA	NA	0.02 U	0.02 U	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
DPT-14	5-7.5'	vadose	8/29/22	NA	NA	10 U	5 U	NA	**162**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14	10-11.5'	saturated	8/29/22	NA	NA	10 U	5 U	NA	**82.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15	5-6.5'	vadose	8/29/22	NA	NA	10 U	5 U	NA	**135**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15	8.5-10'	saturated	8/29/22	NA	NA	**19**	5 U	NA	**123**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-16	6.5-8'	saturated	8/30/22	NA	NA	**12**	5 U	NA	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-16	10-11.5'	saturated	8/30/22	NA	NA	10 U	5 U	NA	**74.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-18	5-7.2'	saturated	8/30/22	NA	NA	10 U	5U	NA	**165**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-18	14-15'	saturated	8/31/22	NA	NA	10 U	5 U	NA	**94.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-19	6-8'	saturated	8/31/22	NA	NA	**12**	5 U	NA	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-19	12.5-15'	saturated	8/31/22	NA	NA	10 U	5 U	NA	**136**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20	6.5-7.5'	saturated	8/31/22	NA	NA	**12**	5 U	NA	**301**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20	13.5-15'	saturated	8/31/22	NA	NA	10 U	5 U	NA	**399**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21	6-10'	saturated	8/31/22	NA	NA	**13**	5 U	NA	**161**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21/ DUP01-220831	11.5-14'	saturated	8/31/22	NA	NA	10 U 10 U	5 U 5 U	NA	**94.1 156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	3.5-5'	vadose	8/31/22	NA	NA	**12**	5 U	NA	**129**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	5-7'	saturated	8/31/22	NA	NA	**12**	5 U	NA	**155**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	11-13.2'	saturated	8/31/22	NA	NA	**10**	5 U	NA	**193**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R	5.5-7'	vadose	8/30/22	NA	NA	10 U	41	NA	**286**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R	11-12'	saturated	8/30/22	NA	NA	**22**	5 U	NA	**285**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	5-7'	vadose	8/30/22	NA	NA	10 U	5 U	NA	**103**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	13.5-15'	saturated	8/30/22	NA	NA	**950**	5 U	NA	**99.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	4-5'	saturated	8/30/22	NA	NA	**80**	5 U	NA	**189**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	12-13'	saturated	8/30/22	NA	NA	**1,600**	5 U	NA	**197**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-01 5-6'	5-6'	vadose	8/29/22	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-02 5-6'	5-6'	vadose	8/29/22	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-02 15-16'	15-16'	saturated	8/29/22	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-03 1-2'	1-2'	vadose	8/29/22	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DA-1	0 - 0.5	vadose	7/25/24	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	0.005 U	**0.0067**	**0.011**	0.005 U	**0.0095**	0.005 U	**0.0063**	**0.008525**	**0.0068**	**0.014**	0.005 U	**0.011**	0.005 U	0.005 U
DA-2	0 - 0.5	vadose	7/25/24	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	**0.0057**	**0.0089**	**0.015**	0.005 U	**0.014**	0.005 U	**0.0097**	**0.01151**	**0.011**	**0.018**	0.005 U	**0.015**	0.005 U	**0.0063**
DA-3	0 - 0.5	vadose	7/25/24	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	**0.0057**	**0.0076**	**0.016**	0.005 U	**0.016**	0.005 U	**0.01**	**0.01036**	**0.011**	**0.018**	**0.011**	**0.015**	**0.0075**	**0.011**
DA-4	0 - 0.5	vadose	7/25/24	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	0.005 U	**0.0056**	**0.01**	0.005 U	**0.012**	0.005 U	0.005 U	**0.00672**	**0.0077**	**0.016**	0.0071	**0.012**	0.005 U	**0.006**
DA-5	0 - 0.5	vadose	7/25/24	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	**0.0059**	**0.01**	**0.015**	0.005 U	**0.016**	0.005 U	**0.011**	**0.01276**	**0.011**	**0.021**	0.005 U	**0.019**	0.005 U	0.005 U

Notes:
All units in mg/kg - milligrams per kilogram
cPAH - carcinogenic polycyclic aromatic hydrocarbons
Total cPAH is the sum of detected values based on the toxic equivalency factor (TEQ) per WAC 173- 340-708(8)(e)
P1: Relative % Difference value not applicable for sample concentrations less than 5 times the reporting limit
BOLD - constituent detected
ft bgs - feet below ground surface
NA - not analyzed
ND - cPAH compounds were not detected. Total cPAH reported as not detected.

U - Constituent not detected at associated reporting level.
J - The identification of the analyte is acceptable; the reported value is an estimate.
B - Analyte found in the associated blank.
J6 - Sample matrix interfered with the ability to make any accurate determination; spiked value is low.
ft bgs - feet below ground surface
Only detected compounds are shown.
PCUL - Preliminary Cleanup Level
TPH-DRO - diesel-range organics
TPH-OPO - oil-range organics

Reported concentration exceeds the Vadose Zone PCUL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated PCUL

Table 4 - Soil and Groundwater Data Summary UST Area
Maralco Site - Kent, WA

Analyte	Screening Level	UST PE-1	UST PE-2	UST PE-3	UST PE-4	UST PE-5	SP-1	SP-2	SP-3	UST SB-1	UST SB-1 WATER	UST SB-1	UST SB-2
		8-10 ft bgs	8-10 ft bgs	8-10 ft bgs	8-10 ft bgs	~17 ft bgs	stockpile	stockpile	stockpile	5 ft bgs	8 ft bgs	15 ft bgs	5 ft bgs
		6/29/1995	6/29/1995	6/29/1995	6/29/1995	6/29/1995	6/29/1995	6/29/1995	6/29/1995	1/22/2003	1/22/2003	1/22/2003	1/22/2003
TPH-DRO - Soil (mg/kg)	2,000	**6,300**	**96**	25 U	25 U	25 U	**1,800**	**2,100**	**1,200**	**1,100**	NA	**1,800**	25 U
TPH-DRO - Groundwater (ug/L)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	**450,000**	NA	NA

NOTES:
Bold - analyte detected
Reported concentration exceeds the screening level (MTCA Method A)
mg/kg - milligrams per kilogram
ug/L - micrograms per liter
ft bgs - feet below ground surface
TPH-DRO - total petroleum hydrocarbons diesel-range organics
PCUL - Preliminary Cleanup Level
NA - not analyzed, not applicable
U - not detected above reporting limit
UST - underground storage tank
This data is from the Enviros 1995 report: Underground Storage Tank Decommissioning at the Maralco Aluminum Site, 7730 South 202nd Street, Kent, Washington,

Table 5 - Phase 1 IAWP Performance Soil Sample Analytical Data Summary
Maralco Site- Kent, WA

Sample ID	Sample Area	Grid Cell	Sample Date	Aluminum	Antimony	Arsenic	Barium	Cadmium	Total Chromium	Cobalt	Copper	Iron	Lead	Mercury	Manganese	Nickel	Selenium	Silver	Zinc
MTCA Method B Direct Contact or Method A Remediation Level (mg/kg)				**80,000**	**32**	**7.3**	**16,000**	**80**	**48.2**	**24**	**3,200**	**56,000**	**250**	**2**	**1,150**	**1,600**	**400**	**400**	**24,000**
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)				**33,000**	**5.2**	**7.3**	**820**	**0.77**	**1,500**	**11**	**36**	**36,000**	**250**	**0.07**	**1,200**	**68**	**0.78**	**0.61**	**130**
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)				**33,000**	**5.2**	**7.3**	**250**	**0.77**	**74**	**11**	**36**	**36,000**	**24**	**0.07**	**1,200**	**48**	**0.78**	**0.61**	**85**
CS-01	0.5-1 ft bd	CS-01	10/17/23	**27,100**	**1.78**	**3.37**	**52.3**	1 U	**27.2**	**4.97**	**127**	**15,900**	**17.3**	0.7 U	**290**	**20.8**	0.268 U	1 U	**104**
CS-02	0.5-1 ft bd	CS-02	10/17/23	**38,000**	**3.14**	**2.44**	**79.4**	**1.16**	**47.2**	**5.69**	**244**	**12,800**	**20.9**	0.7 U	**450**	**25.3**	0.268 U	1 U	**151**
CS-03	0.5-1 ft bd	CS-03	10/17/23	**19,700**	**1.52**	**4.28**	**78.4**	1 U	**22.2**	**5.85**	**107**	**17,900**	**6.96**	0.7 U	**250**	**16.6**	0.268 U	1 U	**82.9**
CS-04	0.5-1 ft bd	CS-04	10/17/23	**13,600**	1 U	**1.61**	**45.4**	1 U	**17.9**	**5.61**	**21.9**	**14,800**	**3.67**	0.7 U	**140**	**17.6**	0.268 U	1 U	**35.0**
CS-05	0.5-1 ft bd	CS-05	10/17/23	**13,100**	1 U	**2.21**	**47.8**	1 U	**17.8**	**5.99**	**13.0**	**16,600**	**2.50**	0.7 U	**240**	**17.7**	0.268 U	1 U	**25.8**
CS-06	0.5-1 ft bd	CS-06	11/14/23	**13,900**	1 U	**2.05**	**37.4**	1 U	**19.5**	**5.62**	**16.8 J**	**16,000**	**2.12**	0.7 U	**190**	**22.3**	0.268 U	1 U	**29.8**
CS-07	0.5-1 ft bd	CS-07	10/17/23	**12,100**	1 U	**1.32**	**39.6**	1 U	**19.5**	**5.62**	**12.1**	**13,200**	**1.58**	0.7 U	**210**	**20.6**	0.268 U	1 U	**28.9**
CS-08	0.5-1 ft bd	CS-08	10/17/23	**14,900**	1 U	**2.73**	**55.9**	1 U	**21.5**	**5.90**	**42.6**	**16,300**	**4.93**	0.7 U	**250**	**20.7**	0.268 U	1 U	**51.0**
CS-09	0.5-1 ft bd	CS-09	10/17/23	**10,500**	1 U	**2.50**	**37.2**	1 U	**15.8**	**3.97**	**31.7**	**11,900**	**5.53**	0.7 U	**160**	**13.0**	0.268 U	1 U	**41.5**
CS-10	0.5-1 ft bd	CS-10	11/10/23	**17,500**	1 U	**2.08**	**40.4**	1 U	**20.7**	**6.44**	**13.7**	**21,000**	**2.73**	0.7 U	**210**	**23.8**	0.268 U	1 U	**27.0**
CS-11	0.5-1 ft bd	CS-11	11/14/23	**14,300**	1 U	**1.24**	**25.4**	1 U	**16.8**	5 U	**7.92 J**	**16,300**	**1.75**	0.7 U	**180 ca**	**20.3**	0.268 U	1 U	25 U
CS-12	0.5-1 ft bd	CS-12	10/17/23	**11,400**	1 U	**1.54**	**44.3**	1 U	**19.4**	**5.37**	**11.8**	**14,400**	**2.18**	0.7 U	**210**	**19.6**	0.268 U	1 U	**23.9**
CS-13	0.5-1 ft bd	CS-13	10/17/23	**28,900**	1 U	**1.44**	**36.2**	1 U	**21.6**	**5.58**	**61.6**	**13,900**	**8.79**	0.7 U	**270**	**20.4**	0.268 U	1 U	**57.5**
CS-14C	0.5-1 ft bd	CS-14	11/1/23	**11,400**	**2.75**	**8.59**	**30.1**	1 U	**12.2**	**4.23**	**35.9**	**15,000**	**21.8**	0.7 U	**140**	**8.98**	0.268 U	1 U	**39.7**
CS-15	0.5-1 ft bd	CS-15	11/10/23	**11,500**	1 U	**1.81**	**16.5**	1 U	**7.30**	**3.42**	**12.2**	**11,800**	**1.61**	0.7 U	**71**	**6.12**	0.268 U	1 U	**17.7**
DUP-231110 (CS-15)	0.5-1 ft bd	QA/QC	11/10/23	**9,160**	1 U	**1.86**	**17.2**	1 U	**7.29**	**3.34**	**14.9**	**10,000**	**1.66**	0.7 U	**66 ca**	**5.67**	0.268 U	1 U	**17.1**
CS-16	0.5-1 ft bd	CS-16	10/17/23	**14,100**	1 U	**2.00**	**47.5**	1 U	**17.7**	**5.72**	**35.7**	**16,700**	**3.80**	0.7 U	**210**	**18.7**	0.268 U	1 U	**29.1**
CS-17	0.5-1 ft bd	CS-17	10/17/23	**28,900**	1 U	**2.56**	**56.5**	1 U	**19.6**	**4.78**	**59.4**	**15,000**	**8.97**	0.7 U	**240**	**14.8**	0.268 U	1 U	**76.4**
CS-18	0.5-1 ft bd	CS-18	10/17/23	**42,400**	**1.67**	**2.79**	**48.4**	1 U	**26.4**	**5.04**	**165**	**15,300**	**17.9**	0.7 U	**260**	**28.0**	0.268 U	1 U	**128**
CS-19C	0.5-1 ft bd	CS-19	11/1/23	**10,200**	1 U	**7.60**	**44.2**	1 U	**11.0**	**4.21**	**22.0**	**13,700**	**6.98**	0.7 U	**140**	**11.1**	0.268 U	1 U	**31.9**
CS-20	2-3 ft bd	CS-20	11/1/23	**7,050**	1 U	**1.11**	**12.9**	1 U	**6.46**	**2.59**	**8.97**	**9,220**	**1.08**	0.7 U	**54**	**5.43**	0.268 U	1 U	**13.2**
CS-21	0.5-1 ft bd	CS-21	11/10/23	**14,400**	1 U	**3.09**	**19.1**	1 U	**9.45**	**3.99**	**15.1**	**14,400**	**2.19**	0.7 U	**95**	**7.97**	0.268 U	1 U	**21.5**
CS-22	0.5-1 ft bd	CS-22	10/30/23	**8,550**	1 U	**1.04**	**5.7**	1 U	**6.34**	**2.44**	**47.0**	**10,400**	**1.42**	0.7 U	**59**	**4.88**	0.268 U k	1 U	**16.3**
DUP-231030-2 (CS-22)	0.5-1 ft bd	QA/QC	10/30/23	**7,490**	1 U	**1.21**	**7.16**	1 U	**7.44**	**3.09**	**57.6**	**7,810**	**1.87**	0.7 U	**76**	**5.97**	0.268 U k	1 U	**19.5**
CS-23	0.5-1 ft bd	CS-23	10/17/23	**17,200**	**1.30**	**11.9**	**27.7**	1 U	**11.5**	**3.84**	**40.9**	**30,100**	**14.6**	0.7 U	**240**	**7.69**	0.268 U	1 U	**39.3**
CS-24	0.5-1 ft bd	CS-24	10/23/23	**8,660**	1 U	**2.42**	**7.42**	1 U	**6.64**	**2.86**	**10.5**	**9,470**	**2.06**	0.7 U	**59**	**5.68**	0.268 U	1 U	**15.6**
CS-25	0.5-1 ft bd	CS-25	10/23/23	**10,200**	1 U	**3.54**	**18**	1 U	**8.12**	**3.65**	**14.6**	**11,400**	**2.71**	0.7 U	**79**	**7.07**	0.268 U	1 U	**17.2**
CS-26	0.5-1 ft bd	CS-26	10/23/23	**12,500**	1 U	1 U	**11.6**	1 U	**8.51**	**3.00**	**43.0**	**12,100**	**1.75**	0.7 U	**70**	**6.22**	0.268 U	1 U	**18.9**
DUP-231023 (CS-26)	0.5-1 ft bd	QA/QC	10/23/23	**11,100**	1 U	**1.03**	**11.6**	1 U	**8.02**	**2.89**	**37.3**	**11,200**	**1.73**	0.7 U	**67**	**6.08**	0.268 U	1 U	**17.9**
CS-27	0.5-1 ft bd	CS-27	10/30/23	**7,650**	1 U	**1.78**	**12**	1 U	**7.32**	**2.54**	**11.5**	**11,300**	**1.49**	0.7 U	**70**	**5.67**	0.268 U k	1 U	**30.1**
CS-28	0.5-1 ft bd	CS-28	11/1/23	**8,070**	1 U	**1.47**	**22.4**	1 U	**6.68**	**2.78**	**7.67 J**	**9,750**	**1.22**	0.7 U	**61**	**5.97**	0.268 U	1 U	**15.8**
CS-29 (CS-229)	0.5-1 ft bd	CS-29	10/31/23	**11,900**	1 U	**1.35**	**10.7**	1 U	**6.99**	**3.05**	**14**	**12,000**	**2.52**	0.7 U	**69**	**6.18**	0.268 U	1 U	**17.8**
~~CS-30~~	~~excavated~~	CS-30	~~10/17/23~~	~~**88,400**~~	~~**8.91**~~	~~**4.52**~~	~~**124**~~	~~**2.19**~~	~~**126**~~	~~**10.8**~~	~~**997**~~	~~**17,400**~~	~~**104**~~	~~0.7 U~~	~~**850**~~	~~**35.7**~~	~~0.268 U~~	~~1 U~~	~~**763**~~
CS-30B	0.5-1 ft bd	CS-30	10/31/23	**8,220**	1 U	**1.23**	**18**	1 U	**7.42**	**2.37**	**8.37**	**10,100**	**14.2**	0.7 U	**68**	**5.04**	0.268 U	1 U	**23.2**
CS-30C	1 ft bd	CS-30	11/1/23	**13,400**	1 U	**17.7**	**287**	1 U	**10.6**	**2.57**	**19.5**	**48,800**	**3.74**	0.7 U	**110**	**5.61**	0.268 U	1 U	**33.9**
~~CS-31~~	~~excavated~~	CS-31	~~10/17/23~~	~~**103,000**~~	~~**12.1**~~	~~**7.72**~~	~~**99.7**~~	~~**2.45**~~	~~**77.3**~~	~~**4.34**~~	~~**546**~~	~~**38,200**~~	~~**64.1**~~	~~0.7 U~~	~~**390**~~	~~**24.8**~~	~~0.268 U~~	~~1 U~~	~~**364**~~
~~CS-31B~~	~~excavated~~		~~10/31/23~~	~~**59,700**~~	~~**6.2**~~	~~**17.3**~~	~~**69.4**~~	~~**1.06**~~	~~**50.6**~~	~~**4.80**~~	~~**715**~~	~~**18,400**~~	~~**105**~~	~~0.7 U~~	~~**420**~~	~~**27.6**~~	~~0.268 U~~	~~1 U~~	~~**535**~~
CS-31C	1 ft bd		11/1/23	**11,600**	1 U	**15.5**	**135**	1 U	**8.93**	**3.24**	**72.9**	**29,000**	**12.4**	0.7 U	**130**	**7.23**	0.268 U	1 U	**62.1**
DUP-231101 (CS-31C)	1 ft bd		11/1/23	**10,500**	1 U	**14.4**	**84**	**1.46**	**10.0**	**3.58**	**40.5**	**56,300**	**12.1**	0.7 U	**100**	**8.03**	0.268 U	1 U	**93.7**
CS-32	0.5-1 ft bd	CS-32	10/17/23	**13,200**	**1.20**	**5.02**	**27.5**	1 U	**9.83**	**4.34**	**19.6**	**14,400**	**3.77**	0.7 U	**96**	**9.11**	0.268 U	1 U	**27.7**
CS-33	0.5-1 ft bd	CS-33	10/23/23	**11,800**	1 U	**9.09**	**34.8**	1 U	**9.48**	**4.8**	**18.3**	**11,300**	**13.9**	0.7 U	**110**	**7.83**	**0.336**	1 U	**33.1**
CS-34	0.5-1 ft bd	CS-34	10/30/23	**6,900**	1 U	**1.08**	**5.39**	1 U	**9.19**	**2.46**	**12.5**	**7,590**	**1.62**	0.7 U	**56**	**4.30**	0.268 U k	1 U	**13.8**
CS-35	0.5-1 ft bd	CS-35	10/30/23	**7,000**	1 U	**1.75**	**12.2**	1 U	**7.97**	**2.62**	**6.73 J**	**9,790**	**1 U**	0.7 U	**65**	**5.61**	0.268 U k	1 U	**17.0**
CS-36	0.5-1 ft bd	CS-36	10/30/23	**11,100**	1 U	**2.88**	**19.9**	1 U	**7.92**	**2.79**	**7.20**	**12,900**	**1.12**	0.7 U	**74**	**5.81**	0.268 U k	1 U	**16.0**
CS-37	0.5-1 ft bd	CS-37	10/30/23	**16,600**	1 U	**6.89**	**26.1**	1 U	**12.1**	**6.02**	**19.3**	**18,000**	**12.8**	0.7 U	**143**	**13.9**	0.268 U k	1 U	**34.5**
CS-38	0.5-1 ft bd	CS-38	10/17/23	**20,100**	**1.04**	**3.9**	**27.9**	1 U	**20.1**	**6.85**	**101**	**16,200**	**21.5**	0.7 U	**180**	**19.4**	0.268 U	1 U	**97.7**
CS-39	0.5-1 ft bd	CS-39	10/17/23	**11,900**	1 U	**7.68**	**52.7**	1 U	**9.89**	**5.32**	**20.0**	**12,800**	**16.4**	0.7 U	**300**	**9.03**	0.268 U	1 U	**44.3**
CS-40	0.5-1 ft bd	CS-40	10/23/23	**7,980**	1 U	**2.56**	**16.5**	1 U	**6.36**	**2.75**	**7.99**	**10,800**	**1.97**	0.7 U	**79**	**5.72**	**0.367**	1 U	**19.1**
CS-41	0.5-1 ft bd	CS-41	10/30/23	**7,380**	**1.3**	**1.18**	**5.7**	1 U	**6.63**	**4.39**	**21.2**	**10,100**	**3.86**	0.7 U	**67**	**6.86**	0.268 U k	1 U	**19.4**
CS-42	0.5-1 ft bd	CS-42	10/30/23	**11,100**	1 U	**2.82**	**15.1**	1 U	**8.49**	**3.49**	**14.5**	**11,200**	**2.50**	0.7 U	**85**	**7.16**	0.268 U k	1U	**23.1**
CS-43	0.5-1 ft bd	CS-43	10/30/23	**7,490**	1 U	**1.77**	**8.32**	1 U	**7.90**	**2.66**	**45.0**	**7,810**	**4.09**	0.7 U	**89**	**5.33**	0.268 U k	1 U	**28.3**
DUP-231030-1 (CS-43)	0.5-1 ft bd	QA/QC	10/30/23	**8,040**	1 U	**1.73**	**8.12**	1 U	**6.57**	**2.38**	**23.8**	**8,380**	**3.67**	0.7 U	**72**	**4.61**	0.268 U k	1 U	**22.7**
CS-44	0.5-1 ft bd	CS-44	10/17/23	**7,090**	1 U	**4.16**	**18.4**	1 U	**6.08**	**2.32**	**14.8**	**9,400**	**8.27**	0.7 U	**72**	**4.86**	0.268 U	1 U	**32.7**
CS-45	0.5-1 ft bd	CS-45	11/27/23	**17,400**	1 U	**3.87**	**50.2**	1 U	**19.6**	**10.4**	**78.6**	**25,500**	**6.24**	0.7 U	**310**	**25.3**	0.268 U	1 U	**104**
CS-46	0.5-1 ft bd	CS-46	11/27/23	**16,800**	1 U	**3.39**	**63.7**	1 U	**14.8**	**7.37**	**27.1**	**19,600**	**3.47**	0.7 U	**310**	**18.3**	0.268 U	1 U	**31.7**
CS-47	0.5-1 ft bd	CS-47	11/27/23	**16,500**	1 U	**1.16**	**32**	1 U	**22.9**	**16.7**	**117**	**42,700**	**6.92**	0.7 U	**330**	**34.5**	0.268 U	1 U	**81.7**
CS-48	0.5-1 ft bd	CS-48	11/27/23	**14,500**	1 U	**2.77**	**67.4**	1 U	**14.3**	**5.03**	**35.0**	**17,400**	**5.38**	0.7 U	**160**	**17.4**	0.268 U	1 U	**34.7**
DUP-231127 (CS-48)	0.5-1 ft bd	QA/QC	11/27/23	**17,000**	1 U	**2.70**	**53.7**	1 U	**14.6**	**5.03**	**48.7**	**20,800**	**6.70**	0.7 U	**160**	**18.3**	0.268 U	1 U	**41.1**
CS-49	0.5-1 ft bd	CS-49	11/17/23	**11,200**	1 U	**3.12**	**55**	1 U	**13.4**	**5.95**	**19.7**	**15,800**	**2.32**	0.7 U	**240**	**13.6**	0.268 U	1 U	**30.2**
DUP-231117 (CS-49)	0.5-1 ft bd	QA/QC	11/17/23	**12,700**	1 U	**3.56**	**67.8**	1 U	**14.5**	**6.60**	**20.2**	**17,000**	**2.63**	0.7 U	**260**	**14.8**	0.268 U	1 U	**32.3**
CS-50	0.5-1 ft bd	CS-50	11/17/23	**9,280**	1 U	**2.85**	**37.7**	1 U	**14.1**	**9.61**	**65.3**	**21,200**	**11.6**	0.7 U	**340**	**20.0**	0.268 U	1 U	**144**
CS-51	0.5-1 ft bd	CS-51	11/17/23	**11,200**	1 U	**2.19**	**52**	1 U	**22.2**	**5.67**	**21.8**	**13,600**	**2.76**	0.7 U	**180**	**26.9**	0.268 U	1 U	**29.1**
CS-52	0.5-1 ft bd	CS-52	11/17/23	**9,110**	**1.25**	**2.77**	**50**	1 U	**19.6**	**6.12**	**36.4**	**10,600**	**5.67**	0.7 U	**240**	**23.5**	0.268 U	1 U	**38.6**
Samples Collected Outside of the Removal Area Footprint																			
CS-14	undisturbed soil - on-property ditch	CS-14	10/17/23	**22,100**	**3.11**	**42.4**	**96.3**	1 U	**18.9**	**5.08**	**126**	**75,800**	**31.3**	0.7 U	**610**	**13.1**	0.268 U	1 U	**174**
CS-19	undisturbed soil - on-property ditch	CS-19	10/17/23	**148,000**	**24.6**	**4.47**	**147**	**7.51**	**191**	**6.64**	**2,040**	**12,300**	**184**	0.7 U	**950**	**87.5**	0.268 U	**1.48**	**1,540**

NOTES:
All units in milligrams per kilogram (mg/kg).
Bold - analyte detected
U - analyte not detected above the laboratory reporting limit
k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
~~Strikethrough~~ - sample location has been excavated
Reported concentration exceeds the Vadose Zone PCUL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated PCUL
Reported concentration exceeds 2-times the MTCA Direct Contact value for Arsenic
ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.
ft bd - feet below the dross pile (estimated)
Data from samples DPT-5, DPT-6, DPT-8, DPT-9, DPT-11, DPT-12, DPT-13 was used to inform the IAPW Phase 1 removal footprint and is superseded by the data presented above.
Excavated samples are shown as strikethrough text, these samples were replaced with samples collected after additional soil excavation was completed within this grid cell.
PCUL - Preliminary Cleanup Level

Table 6 - On-Property Ditch and Stormwater Pond Data Summary
Maralco Site - Kent, WA

	PCUL - Soil Protective of SW Vadose	PCUL - Soil Protective of SW Saturated	Unnamed Ditch											Christopher Ditch				Stormwater Pond		
			B2	HB-8	HB-8	HB-9	HB-9	SW-1	SW-6	SW-8[1]	SS-1	SS-2	SS-900 (SS-2 Dup)	B3	SW-2	SW-3	SW-4	SW-7 (Removed)	HB-7 (Removed)	SED-01
Sample depth (ft bgs)	(fresh water,	(fresh water,	---	0-1	2.5-3	0-1	3-4	---	---	---	---	---	---	---	---	---	---	---	0.5-1.3	---
Dated Collected	mg/kg)	mg/kg)	6/25/87	9/11/90	9/11/90	9/11/90	9/11/90	5/10/90	5/10/90	5/9/90	10/28/16	10/28/16	10/28/16	6/25/87	5/9/90	5/10/90	5/10/90	5/10/90	9/11/90	6/3/21
Aluminum	33,000	33,000	NA	**188,000**	**9,770**	**17,700**	**15,200**	**39,400**	**77,900**	See Note 1	**55,500**	**22,200**	**81,100**	NA	**9,970**	**25,600**	**17,200**	**132,000**	**99,000**	**46,900**
Iron	36,000	36,000	NA	NA	NA	NA	NA	**10,600**	**17,700**		NA	NA	NA	NA	**18,700**	**19,500**	**43,300**	**21,000**	NA	**12,200**
Antimony	5.2	5.2	**3.2**	NA	NA	NA	NA	**4.1**	**1.5**		NA	NA	NA	0.6 U	**0.2**	**0.83**	**4.09**	**7.4**	NA	**8.79**
Arsenic	7.3	7.3	**5.8**	NA	NA	NA	NA	**3.1**	**4.4**		**6.78**	**4.3 J**	**9.47**	**4.4**	**2.2**	**3.9**	**53.4**	**4.4**	NA	**4.32**
Cadmium	0.77	0.77	**4.5**	NA	NA	NA	NA	**1.4**	**1**		**0.619 J**	**2.74**	**5.56**	1.0 U	**1**	**0.9**	**6.9**	**6**	NA	**5.37**
Chromium	1,500	74	**232**	**154J**	**15J**	**28J**	**18.4J**	**54.7**	**87.5**		**36.3**	**54.4**	**112**	**14**	**15.7**	**27.7**	**58.5**	**150**	**111J**	**68.4**
Cobalt	11	11	NA	NA	NA	NA	NA	**5.8**	**5.6**		NA	NA	NA	NA	**4.8**	**5.6**	**11.2**	**7.4**	NA	**6.1**
Copper	36	36	**1500**	**6050**	**153**	**133**	**38.7**	**562**	**883**		NA	NA	NA	**16**	**59**	**231**	**183**	**1330**	**1220**	**627**
Lead	250	24	**144**	**144**	**6.8J**	**22.6**	**5.7J**	**61**	**61**		**42**	**53.7**	**113**	**14**	**22**	**24**	**89**	**246**	**275**	**158**
Mercury	0.07	0.07	0.2 U	NA	NA	NA	NA	**0.1**	0.06 U		**0.0564**	**0.116**	**0.158**	0.2 U	**0.03**	0.1 U	0.27 U	**0.49**	NA	NA
Manganese	1,100	1,100	NA	**1,520**	**101**	**376**	**238**	**285**	**608**		NA	NA	NA	NA	**201**	**286**	**396**	**539**	**693**	**193**
Nickel	68	47.8	**74**	NA	NA	NA	NA	**22**	**33**		NA	NA	NA	**12**	**13**	**15**	**31**	**65**	NA	**35.1**
Selenium	0.78	0.78	0.3 U	NA	NA	NA	NA	1.2 U	0.7 U		NA	NA	NA	0.2 U	0.6 U	0.7 U	3.3 U	0.8 U	NA	NA
Silver	0.61	0.61	3.0 U	NA	NA	NA	NA	**0.9**	**0.5**		1.57 U	**0.776 J**	**3.14**	2.0 U	0.3 U	0.3 U	1.5 U	**1.3**	NA	NA
Zinc	130	85	**1300**	**3280**	**78.7**	**111**	**36.5**	**528**	**678**		NA	NA	NA	**58**	**135**	**203**	**1200**	**1150**	**999**	**957**
Chloride	NC	NC	NA	NA	NA	NA	NA	NA	NA	NA	**82.3**	**26,800**	**29,900**	NA	NA	NA	NA	NA	NA	**49.4**
Fluoride	NC	NC	NA	NA	NA	NA	NA	NA	NA	NA	**226**	**383**	**579**	NA	NA	NA	NA	NA	NA	**45.1**
Nitrate	NC	NC	NA	NA	NA	NA	NA	NA	NA	NA	**3.62**	**13.8**	**8.21**	NA	NA	NA	NA	NA	NA	NA
Ammonia-Nitrogen	230	300	NA	NA	NA	NA	NA	NA	NA	NA	**4.26 J**	**6.65 J**	15.6 U	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOCs) - detected compounds only																				
Toluene	0.37	0.023	NA	NA	NA	NA	NA	0.013 U	NA	0.022 U	NA	NA	NA	NA	0.007 U	NA	**0.074**	0.009 U	NA	NA
Xylene (total)	0.51	0.03	NA	NA	NA	NA	NA	0.013 U	NA	0.022 U	NA	NA	NA	NA	0.007 U	NA	**0.17**	0.009 U	NA	NA
Semi-Volatile Organic Compounds (SVOCs) - detected compounds only																				
Fluorene	1.6	0.08	NA	NA	NA	NA	NA	1.7 U	NA	2.8 U	NA	NA	NA	NA	0.88 U	NA	**1.1 J**	1.2 U	NA	NA
Phenanthrene	NC	NC	NA	NA	NA	NA	NA	1.7 U	NA	**0.89 J**	NA	NA	NA	NA	0.88 U	NA	**3.1 J**	**1.1 J**	NA	NA
Di-n-Butylphthalate	0.28	0.015	NA	NA	NA	NA	NA	1.7 U	NA	2.8 U	NA	NA	NA	NA	0.88 U	NA	3.8 U	**0.17 J**	NA	NA
Fluoranthene	0.02	0.001	NA	NA	NA	NA	NA	1.7 U	NA	**1.1 J**	NA	NA	NA	NA	**0.12 J**	NA	**1.9 J**	**2.3**	NA	NA
Pyrene	0.02	0.001	NA	NA	NA	NA	NA	**0.21 J**	NA	2.2 U	NA	NA	NA	NA	**0.16 J**	NA	**3.3 J**	**3.9**	NA	NA
bis(2-Ethylhexyl)phthalate	0.1	0.01	NA	NA	NA	NA	NA	**0.510 J**	NA	**11**	NA	NA	NA	NA	**0.51 J**	NA	14 U	**11**	NA	NA
Di-n-octyl Phthalate	0.55	0.03	NA	NA	NA	NA	NA	1.7 U	NA	2.8 U	NA	NA	NA	NA	0.88 U	NA	**3**	1.2 U	NA	NA
Phenol	0.76	0.047	NA	NA	NA	NA	NA	1.7 U	NA	2.8 U	NA	NA	NA	NA	0.88 U	NA	3.8 U	**0.14 J**	NA	NA
4-Methylphenol	1.5	0.085	NA	NA	NA	NA	NA	1.7 U	NA	**0.34 J**	NA	NA	NA	NA	0.88 U	NA	3.8 U	1.2 U	NA	NA
Benzoic Acid	40	2.9	NA	NA	NA	NA	NA	8.2 U	NA	14 U	NA	NA	NA	NA	4.3 U	NA	19 U	**0.32 J**	NA	NA
Naphthalene	4.5	0.24	NA	NA	NA	NA	NA	1.7 U	NA	**0.52 J**	NA	NA	NA	NA	0.88 U	NA	3.8 U	1.2 U	NA	NA
2-Mehtylnaphthalene	1.8	0.089	NA	NA	NA	NA	NA	1.7 U	NA	**0.59 J**	NA	NA	NA	NA	0.88 U	NA	3.8 U	**0.27 J**	NA	NA
Silanol, trimethyl	NC	NC	NA	NA	NA	NA	NA	**0.36 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAH/cPAH	0.084	0.0042	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	**0.069**	**1.201**	NA	NA

Notes:

Bold - analyte detected
mg/kg - milligrams per kilogram dry weight
NC - no criterion
NA - not analyzed or not available
J - Reported value is an estimate.
cPAH = Carcinogenic Polycyclic aromatic hydrocarbons
U - not detected at reporting limit
ROW - right of way
ND - cPAH compounds were all not detected
PCUL - Preliminary Cleanup Level

Reported concentration exceeds the Vadose Zone SL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated SL

Total cPAH is the sum of detected values based on the toxic equivalency factor (TEQ) per WAC 173- 340-708 (8)(e)

Note 1 - SW-8 is located in the off-property ditch in the S. 202nd right-of-way but the PAH data for this sample are included in this table. See Table 7 for the rest of the data associated with this sample.

Table 7 - Off-Property Ditch Data Summary
Maralco Site - Kent, WA

	Sample ID	Sample depth (ft bgs)	Dated Collected	Aluminum	Iron	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Nickel	Silver	Mercury	Zinc
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)				**33,000**	**36,000**	**5.2**	**7.3**	**0.77**	**1500**	**11**	**36**	**250**	**68**	**0.61**	**0.07**	**130**
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)				**33,000**	**36,000**	**5.2**	**7.3**	**0.77**	**74**	**11**	**36**	**24**	**48**	**0.61**	**0.07**	**85**
Upstream[1]	B4	---	6/25/87	NA	NA	0.6 U	**5.2**	2.0 U	**14**	NA	**21**	**20**	**15**	3.0 U	0.1 U	**67**
S. 202nd ROW	B1	---	6/25/87	NA	NA	**1.2**	**19**	2.0 U	**36**	NA	**262**	**64**	**31**	3.0 U	**0.26**	**365**
	SW-8	---	5/9/90	**93,700**	**40,600**	6.6	**6.8**	**7.4**	**127**	**5.4**	**1,050**	**261**	**46**	**1.2**	**0.73**	**957**
	SED-02	0-0.5	6/9/21	**12,000**	**19,000**	2 U	**3.79**	1 U	**11.6**	**4.21**	**41.2**	**10.4**	**10.7**	NA	NA	**109**
	SED-02	0.5-1	6/9/21	**12,100**	**16,500**	2 U	**2.18**	1 U	**10.1**	**2.85**	**20.2**	**8.24**	**7.54**	NA	NA	**58.1**
	SED-03	0-0.5	6/9/21	**23,200**	**81,800**	8 U	**19.2**	2 U	**31.4**	10 U	**159**	**40.2**	**25.5**	NA	NA	**325**
	SED-03	0.5-1	6/9/21	**115,000**	**29,000**	**55.4**	**7.21**	**11.8**	**208**	10 U	**1,410**	**189**	**64.2**	NA	NA	**2,190**
	SED-04	0-0.5	7/11/23	NA	NA	NA	**16.3**	**1.04**	**14.9**	NA	**82.6**	NA	**8.12**	0.57 U	0.66 U	NA
	SED-04	0.5-1	7/11/23	NA	NA	NA	**6.86**	1 U	**11.7**	NA	**44.0**	NA	**9.74**	0.57 U	0.66 U	NA
	SED-05N	0-0.5	7/11/23	NA	NA	NA	**7.1**	1 U	**11.6**	NA	**18.6**	NA	**10.3**	0.57 U	0.66 U	NA
	SED-05	0-0.5	7/11/23	NA	NA	NA	**28.6**	**1.99**	**26.1**	NA	**149.0**	NA	**16.4**	0.57 U	0.66 U	NA
	SED-05	0.5-1	7/11/23	NA	NA	NA	**15.2**	1 U	**16**	NA	**68.0**	NA	**9.20**	0.57 U	0.66 U	NA
	SED-05	1-1.5	7/11/23	NA	NA	NA	**30.8**	**1.73**	**26.9**	NA	**207**	NA	**13.9**	0.5U	0.66 U	NA
	SED-05	1.5-2	7/11/23	NA	NA	NA	**16.0**	**1.01**	**23.1**	NA	**118**	NA	**12.3**	0.25U	0.33U	NA
	SED-05S1	0-0.5	7/11/23	NA	NA	NA	**45.8**	**1.15**	**10.3**	NA	**30.8**	NA	**6.58**	0.57 U	0.66 U	NA
	SED-05S1	0.5-1	7/11/23	NA	NA	NA	**40.7**	1 U	**2.35 J**	NA	5 UJ	NA	**1.31 J**	0.57 U	0.66 U	NA
	SED-05S1	1-1.5	7/11/23	NA	NA	NA	**7.50**	1U	**7.86**	NA	**11.5**	NA	**4.44**	0.25U	0.33U	NA
	SED-05S1	1.5-2	7/11/23	NA	NA	NA	**2.34**	1U	**6.44**	NA	**7.82**	NA	**3.93**	0.25U	0.33U	NA
	SED-05S2	0-0.5	7/11/23	NA	NA	NA	**2.64**	1 U	**9.40**	NA	**14.8**	NA	**6.95**	0.57 U	0.66 U	NA
	SED-05S3	0-0.5	7/11/23	NA	NA	NA	**2.89**	2 U	**8.18**	NA	**16.0**	NA	**7.25**	0.57 U	0.66 U	NA
	SED-06	0-0.5	7/11/23	NA	NA	NA	**25.9**	**1.92**	**12.3**	NA	**89.4**	NA	**6.96**	0.57 U	0.66 U	NA
	SED-06	0.5-1	7/11/23	NA	NA	NA	**9.63**	**2.51**	**26.3**	NA	**277**	NA	**13.0**	0.57 U	0.66 U	NA
	SED-06	1-1.5	7/11/23	NA	NA	NA	**11.4**	**4.65**	**23.1**	NA	**189**	NA	**14.7**	0.5U	0.66 U	NA
	SED-06	1.5-2	7/11/23	NA	NA	NA	**3.36**	1U	**8.35**	NA	**16.1**	NA	**5.15**	0.25U	0.33U	NA
	SED-07N	0.5-1	7/11/23	NA	NA	NA	**3.28**	1 U	**13.6**	NA	**24.9**	NA	**12.6**	0.57 U	0.66 U	NA
	SED-07	0-0.5	7/11/23	NA	NA	NA	**19.6**	**1.24**	**12.9**	NA	**120**	NA	**8.27**	0.57 U	0.66 U	NA
	SED-07	0.5-1	7/11/23	NA	NA	NA	**3.73**	**4.45**	**77.2**	NA	**495**	NA	**24.3**	0.57 U	0.66 U	NA
	SED-07	1-1.5	7/11/23	NA	NA	NA	**2.97**	1 U	**7.58**	NA	**34.7**	NA	**4.88**	0.57 U	0.66 U	NA
	SED-07S1	0-0.5	7/11/23	NA	NA	NA	**6.82**	1 U	**9.49**	NA	**23.9**	NA	**6.89**	0.57 U	0.66 U	NA
	SED-07S2	0-0.5	7/11/23	NA	NA	NA	**4.78**	1 U	**8.33**	NA	**14.3**	NA	**6.53**	0.57 U	0.66 U	NA
	SED-07S3	0-0.5	7/11/23	NA	NA	NA	**5.71**	1 U	**8.05**	NA	**16.0**	NA	**6.46**	0.57 U	0.66 U	NA
	SED-08	0-0.5	7/11/23	NA	NA	NA	**19.8**	**1.34**	**18.9**	NA	**137**	NA	**9.62**	0.57 U	0.66 U	NA
	SED-08	0.5-1	7/11/23	NA	NA	NA	**9.50**	**1.78**	**30.6**	NA	**196**	NA	**14.8**	0.57 U	0.66 U	NA
	SED-08	1-1.5	7/11/23	NA	NA	NA	**5.85**	1 U	**16.2**	NA	**95.6**	NA	**7.18**	0.57 U	0.66 U	NA
KCDD#1 Wetland	KCDD-S	0.5-1	8/24/21	**18,400**	NA	**2.89**	**18.9**	2 U	**38.7**	**6.81**	**64.6**	**60.6**	**20.8**	2 U	NA	NA
	KCDD-N	0.5-1	8/24/21	**23,600**	NA	**2.95**	**10.8**	**2.01**	**23.1**	**5.27**	**98.6**	**54.7**	**14.7**	1 U	NA	NA

NOTES:

Bold - analyte detected
mg/kg - milligrams per kilogram dry weight
U - not detected at reporting limit
Reported concentration exceeds the Vadose Zone SL (includes saturated zone for compounds with the same SL for vadose and saturated)
Reported concentration exceeds the Saturated SL

ROW - right of way
NA - not analyzed or not available
PCUL - Preliminary Cleanup Level

This table includes material collected from off-site ditches. This materail is called sediment in past report/field notes. In the development of this IAWP, Ecology has determined that the ditch material is soil as it does not meet the Sediment Management Standards (SMS) definition of sediment (see WAC 173-204-505[22]), nor does it support benthic organisms.

1. B4 is located upstream near the NE corner of the Property.

Table 8 - Reconnaissance Grab Groundwater Data Summary
Maralco Site - Kent, WA

Analyte (ug/L)	PCUL (ug/L)	B-1-GW	B-2-GW	B-3-GW	B-4-GW	B-5-GW	B-6-GW	DPT-1-0521	DPT-2-0521	DPT-14	DPT-15	DPT-16	DPT-17	DPT-18	DPT-19	DPT-20	DPT-21/ DUP02	DPT-22	SB-UST-01	SB-UST-02	SB-UST-03
		10/27/16	11/2/16	11/2/16	11/2/16	11/2/16	11/2/16	5/24/21	5/24/21	8/29/22	8/29/22	8/30/22	8/30/22	8/31/22	8/31/22	8/31/22	8/31/22	8/31/22	8/29/22	8/29/22	8/29/22
Aluminum, total	500 *	151,000	159,000	11,000	363,000 J	7,880	43,500	405	1,160	0.3 U	1,660	348	NA	553	3,720	84.5	1800 / 632	634	9,350	3,120	1,100
Arsenic, total	8.0	68.6	45.2	33.8	65.9	43.9	64	13.3	13.6	8.31	22.1	3.23	NA	5.12	17.4	6.97	3.46 / 3.45	1.16	3.12	35.3	20.3
Barium, total	1,000	608	590	164	676	3,850	325	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, total	0.72	1.13 J	1.5 J	2 U	1.56 J	2 U	2 U	1 U	1 U	1 U	10 U	1 U	NA	1 U	5 U	1 U	1 U / 1 U	1 U	1 U	1 U	10 U
Chromium, total	100	86.6	124	15.4	108	18.7	44.3	2.41	1.74	1.19	7.44	1.65	NA	2.68	26.7	1.11	2.19 / 2.00	1.66	6.73	7.97	3.53
Lead, total	2.1	41.9	49.3	6.73	28.5	9.4	40.3	1 U	1	1 U	3.47	1 U	NA	1.66	7.51	1 U	1 U / 1 U	1 U	1.94	3.09	1.62
Mercury, total	0.012	0.0726 J	0.234	0.2 U	0.0681 J	0.0502 J	0.338	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, total	5	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver, total	3.2	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, total	50	NA	NA	NA	NA	NA	NA	2,720	379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, total	300	NA	NA	NA	NA	NA	NA	32,200	10,300	33,900	84,700	33,800	NA	29,800	91,000	34,100	33,200 / 35,300	20,000	13,500	45,500	64,900
Antimony, total	5.6	NA	NA	NA	NA	NA	NA	2 U	2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, total	4.8	NA	NA	NA	NA	NA	NA	4.29	1 U	1 U	5.78	1.67	NA	1.60	21.7	1.18	1.51 / 1.46	1.17	1.51	4.38	1.71
Copper, total	11	NA	NA	NA	NA	NA	NA	11.1	9.63	5 U	22.4	6.20	NA	9.32	57.3	5 U	5 U/ 5 U	5 U	13.0	21.1	11.2
Nickel, total	52	NA	NA	NA	NA	NA	NA	8.14	1.02	1.52	7.10	2.34	NA	3.10	26.6	1.63	3.10 / 2.93	2.46	3.59	7.26	2.79
Zinc, total	100	NA	NA	NA	NA	NA	NA	5 U	5 U	5 U	20.4	5 U	NA	7.15	91.3	5 U	6.14 / 5.83	5 U	6.65	18.3	6.30
Aluminum, dissolved	500 *	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1.10	2.37	NA	2.14	3.74	1.67	1.67 / 1 U	1 U	606	15.5	7.64
Arsenic, dissolved	8.0	NA	NA	NA	NA	NA	NA	NA	NA	7.90	18.0	1.55	NA	3.82	8.93	6.64	2.83 / 2.95	1 U	5 U	32.2	19.7
Cadmium, dissolved	0.72	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U
Chromium, dissolved	100	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	NA	2 U	2 U	2 U	1 U / 1 U	1 U	4.72	1.32	1.51 U
Cobalt, dissolved	4.8	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	NA	2 U	2 U	2 U	1 U / 1 U	1 U	1 U	1 U	1 U
Copper, dissolved	11	NA	NA	NA	NA	NA	NA	NA	NA	5 U	5 U	5 U	NA	10 U	10 U	10 U	5 U / 5 U	5 U	5 U	5 U	5 U
Lead, dissolved	2.1	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U
Nickel, dissolved	52	NA	NA	NA	NA	NA	NA	NA	NA	1.30	1 U	1.67	NA	2 U	2 U	2 U	1.09 / 1.17	1.60	1.62	1 U	1.20
Zinc, dissolved	100	NA	NA	NA	NA	NA	NA	NA	NA	5 U	5 U	5 U	NA	10 U	10 U	10 U	5 U / 5 U	5 U	5 U	5 U	5 U
Iron, dissolved	300	NA	NA	NA	NA	NA	NA	NA	NA	32,500	50,400	27,400	NA	24,000	29,800	32,700	27900 / 29,400	17,600	8,760	30,000	57,900
Chloride (mg/L)	230	265	177	341	109	8,970	111	224	51.6	20.1	183	139	NA	5.33	3.42	2.47	6.02 / 6.08	4.81	265	271	693
Fluoride (mg/L)	0.96	0.428	0.850	0.496	5.09	7.74	52.9	0.800 U	1.38	1.36	0.14	0.17	NA	0.05 U	0.06	0.05 U	0.05 / 0.05	0.12	16.3	0.78	0.27
Nitrate-nitrogen (mg/L)	10	0.488	0.177	0.0556 J	0.363	0.100 U	0.100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-nitrogen (mg/L)	NC	4.070	4.570	7.030	4.150	39.8	0.516	NA	NA	2.72	3.31	2120	NA	0.182	0.286	0.072	0.077 / 0.086	0.088	0.304	5.21	5.40
TPH-Gasoline	1000	NA	NA	NA	NA	NA	NA	100 U	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Oil	500	160 J	250 U	235 J	250 U	250 U	250 U	850 x	12,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	91 x	880 x	290 x
Residual Range Oil	500	500 U	500 U	500	500 U	500 U	500 U	370 x	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	250 U	250 U
Diesel Range Oil - SGC	500	NA	NA	NA	NA	NA	NA	140 x	4,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	50 U	50 U
Residual Range Oil - SGC	500	NA	NA	NA	NA	NA	NA	250 U	430 x	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	250 U	250 U
Benzene	0.44	NA	NA	NA	NA	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	12	NA	NA	NA	NA	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	53	NA	NA	NA	NA	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	57	NA	NA	NA	NA	NA	NA	3 U	3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	30	0.112	0.05 U	0.459	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.056	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NC	0.0136 J	0.05 U	0.0735 J	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(A)Anthracene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(A)Pyrene**	see total cpah	0.0812	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(B)Fluoranthene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA

Table 8 - Reconnaissance Grab Groundwater Data Summary
Maralco Site - Kent, WA

Analyte (ug/L)	PCUL (ug/L)	B-1-GW	B-2-GW	B-3-GW	B-4-GW	B-5-GW	B-6-GW	DPT-1-0521	DPT-2-0521	DPT-14	DPT-15	DPT-16	DPT-17	DPT-18	DPT-19	DPT-20	DPT-21/ DUP02	DPT-22	SB-UST-01	SB-UST-02	SB-UST-03
		10/27/16	11/2/16	11/2/16	11/2/16	11/2/16	11/2/16	5/24/21	5/24/21	8/29/22	8/29/22	8/30/22	8/30/22	8/31/22	8/31/22	8/31/22	8/31/22	8/31/22	8/29/22	8/29/22	8/29/22
Benzo(G,H,I)Perylene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.04 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(K)Fluoranthene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(A,H)Anthracene**	see total cpah	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Total cPAH	0.0043	**0.0812**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	0.02	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	10	**0.0431 J**	0.05 U	**0.483**	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	**0.034**	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	160	**0.167 J**	**0.0429 J**	**0.614**	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NC	**0.0124 J**	0.05 U	**0.0249 J**	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.015	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	1.51	**0.147 J**	**0.0167 J**	**2.38**	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	32	**0.0585 J**	**0.0165 J**	**0.226 J**	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	100	0.25 U	0.25 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

Bold - analyte detected
Units - ug/L for except mg/L for chloride, fluoride, nitrate-nitrogen, and ammonia-nitrogen
ug/L - micrograms per liter
mg/L - milligrams per liter
SGC - with silica gel cleanup
PQL = practical quantitation limit
Detected value exceeds PCUL
NC - no criterion

PCUL - Preliminary Cleanup Level
J - Reported value is an estimate.
ND - cPAH compounds were all not detected
NA - not analyzed
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
U - not detected at listed reporting limit
TPH - total petroleum hydrocarbons

* Aluminum value is calculated based on EAP document EPA-822-R-18-001, December 2018. The aluminum SL is based on a pH=7, hardness of 100 mg/L CaCO3, and dissolved organic carbon of 2.5 mg/L.

** carcinogenic polycyclic aromatic hydrocarbon. Total cPAH is the sum of detected values based on the toxic equivalency factor (TEQ) per WAC 173- 340-708 (8)(e)

Table 9 - Monitoring Well Groundwater Data Summary
Maralco Site - Kent, WA

Analyte (ug/L)	PCUL (ug/L)	MW-1 10/2/90	MW-1 9/14/22	MW-2 10/1/90	MW-2 1/24/03	DUP OF MW-2 1/24/03	MW-2 11/2/16	MW-2 9/14/22	MW-3 10/1/90	MW-3 1/24/03	MW3A 7/26/17	MW3A 6/3/21	MW3A 9/13/22	MW-4 10/1/90	MW-4 1/24/03	MW-4 9/13/22	MW4A 7/26/17	MW4A 6/3/21	DUP OF MW4A 6/3/21	MW-5 1/24/03	MW5A 7/26/17	MW5A 6/3/21	MW-5R 9/13/22	MW6 7/26/17	MW6 6/3/21	MW6 9/13/22	MW-7 9/13/22	MW-8 9/14/22
Aluminum, total	500 *	**17,800**	**33.0**	**2,350**	**600**	**860**	**174**	**65.0**	**3,850**	**820**	**5,800**	**2,160**	**993**	**27,500**	**3,600**	**159**	**61**	100 U	100 U	**28,000**	**93,000**	**32,200**	**1,500**	**130**	**273**	**308**	**487 / 1,270**	**13.4**
Antimony, total	5.6	30 U	NA	30 U	NA	NA	NA	NA	30 U	NA	NA	2 U	NA	30 U	NA	NA	NA	2 U	2 U	NA	NA	4 U	NA	NA	2 U	NA	NA	NA
Arsenic, total	8.0	**7.96**	1 U	**5.3**	3 U	3 U	10 U	**1.69**	**5.38**	**40**	5 U	1 U	**1.03** U	**17.1**	**19**	**12.9**	5 U	**9.45**	**9.37**	**11**	**6**	**73.2**	**12.6**	5 U	**18.3**	**35.3**	**5.84 / 5.16**	10 U
Barium	1,000	**109**	NA	**33.3**	56 U	56 U	**5.65**	NA	**3,530**	**2,500**	50 U	NA	NA	**605**	**77**	NA	50 U	NA	NA	**170**	50 U	NA	NA	50 U	NA	NA	NA	NA
Cadmium, total	0.72	2 U	1 U	2 U	4 U	4 U	2 U	1 U	2 UJ	4.4 U	5 U	1 U	1 U	2 U	4.4 U	10 U	5 U	1 U	1 U	4.4 U	5 U	**4.60** U	1 U	5 U	1 U	10 U	1 / 1 U	10 U
Chromium, total	100	**16**	1 U	5 U	11 U	11 U	10 U	1 U	5 U	**14**	10 U	1 U	**2.99**	**25**	**22**	**2.99**	10 U	1 U	**1.01**	**38**	**10**	**98.6**	**3.18**	10 U	**2.13**	**2.84**	**2.40 / 2.68**	10 U
Cobalt, total	4.8	**15** J	**1.15**	5 U	NA	NA	NA	**2.51**	**61.3**	NA	NA	1 U	1 U	**14 J**	NA	1 U	NA	1 U	1 U	NA	NA	**34.6**	**2.74**	NA	**2.77**	**2.03**	**1.66 / 1.78**	**14.9**
Copper, total	11	**33.5**	5 U	**11.9**	NA	NA	NA	5 U	**17.6**	NA	NA	**6.73**	**12.4**	**79.9**	NA	**5.11**	NA	**8.56**	**9.51**	NA	NA	**589**	5 U	NA	**19.0**	5 U	5 / 5 U	50 U
Iron, total	300	**32,500**	**93.6**	**44,400**	NA	NA	NA	**9,430**	**1,140,000**	NA	NA	**304**	**1,150**	**65,800**	NA	**48,600**	NA	**62,900**	**64,500**	NA	NA	**157,000**	**2,190**	NA	**47,700**	**54,200**	**11,000 / 11,100**	**75,400**
Lead, total	2.1	**5.32**	1 U	**2.0** J	**1.2**	**1.4**	**2.59**	1 U	**1.0** J	**2.7**	2 U	1 U	1 U	**9.51**	**9.0**	**1.24** U	2 U	1 U	1 U	**8.0**	**2**	**53.7**	1 U	2 U	1 U	1 U	1 / 1 U	10 U
Manganese, total	50	**974**	NA	**2,150**	NA	NA	NA	NA	**39,100**	NA	NA	**37.5**	NA	**2,760**	NA	NA	NA	**2,660**	**2,750**	NA	NA	**2,510**	NA	NA	**1,590**	NA	NA	NA
Mercury	0.012	**0.12**	NA	0.04 U	0.5 U	0.5 U	0.2 U	NA	**0.11 J**	0.5 U	0.5 U	NA	NA	**0.077 J**	0.5 U	NA	0.5 U	NA	NA	0.5 U	0.5 U	NA	NA	0.5 U	NA	NA	NA	NA
Nickel, total	52	**15** J	**2.97**	10 U	NA	NA	NA	**4.97**	10 U	NA	NA	1 U	**1.66**	**28 J**	NA	1 U	NA	**1.06**	**1.06**	NA	NA	**76.7**	**5.26**	NA	**2.71**	**1.26**	**2.26 / 2.46**	**20.0**
Silver	3.2	2 U	NA	2 U	11 U	11 U	5 U	NA	2 U	11 U	10 U	NA	NA	2 U	11 U	NA	10 U	NA	NA	11 U	10 U	NA	NA	10 U	NA	NA	NA	NA
Selenium	5	2 UJ	1 Uk	2 UJ	2.6 U	2.6 U	10 U	NA	4 UJ	**43**	50 U	NA	NA	2 UJ	5.6 U	NA	50 U	NA	NA	5.6 U	50 U	NA	NA	50 U	NA	NA	NA	NA
Zinc, total	100	**543**	5 U	**26**	NA	NA	NA	5 U	**33**	NA	NA	5 U	5 U	**92.2**	NA	5 U	NA	5 U	5 U	NA	NA	**431**	5 U	NA	5 U	5 U	5 / 5 U	**130**
Aluminum, dissolved	500 *	NA	**5.84**	NA	NA	NA	NA	1 U	NA	NA	NA	NA	**493**	NA	NA	**8.50**	NA	NA	NA	NA	NA	NA	**72.3**	NA	NA	**61**	**43.0 / 41.2**	1 U
Arsenic, dissolved	8.0	NA	1 U	NA	NA	NA	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	**11.0**	NA	NA	NA	NA	NA	NA	**12.6**	NA	NA	**33.8**	**6.17 / 5.94**	10 U
Barium, dissolved	2000	NA	**5.5**	NA	NA	NA	NA	**3.3**	NA	NA	NA	NA	**4.7**	NA	NA	**87**	NA	NA	NA	NA	NA	NA	**33**	NA	NA	**150**	**110/100**	**2,100**
Cadmium, dissolved	0.72	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA	1 U	1 / 1 U	10 U
Chromium, dissolved	100	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	NA	NA	**1.90**	NA	NA	**3.66**	NA	NA	NA	NA	NA	NA	**3.06**	NA	NA	**3.44**	**2.13 / 2.00**	10 U
Cobalt, dissolved	4.8	NA	**1.12**	NA	NA	NA	NA	**2.70**	NA	NA	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	**2.84**	NA	NA	**2.58**	**1.89 / 1.79**	**17.5**
Copper, dissolved	11	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	NA	NA	5 U	5 / 5 U	50 U
Lead, dissolved	2.1	NA	50 U	NA	NA	NA	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	5 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA	5 U	1 / 1 U	10 U
Manganese, dissolved	50	NA	**88**	NA	NA	NA	NA	**240** ve	NA	NA	NA	NA	**21**	NA	NA	**2000** ve	NA	NA	NA	NA	NA	NA	**660** ve	NA	NA	**930** ve	**770/740** ve	**7,700**
Mercury, dissolved	0.012	NA	0.2 Uj jl	NA	NA	NA	NA	0.2 Uj jl	NA	NA	NA	NA	0.2 Uj jl	NA	NA	0.2 Uj jl	NA	NA	NA	NA	NA	NA	0.2 Uj jl	NA	NA	0.2 Uj jl J	0.2/0.2 Uj jl	0.2 Uj jl ca
Nickel, dissolved	52	NA	1 U	NA	NA	NA	NA	**5.02**	NA	NA	NA	NA	**1.13**	NA	NA	1 U	NA	NA	NA	NA	NA	NA	**4.81**	NA	NA	**1.32**	**2.13 / 2.03**	**19.2**
Selenium, dissolved	5	NA	1 U	NA	NA	NA	NA	1 Uca	NA	NA	NA	NA	1 Uca	NA	NA	1 Uca	NA	NA	NA	NA	NA	NA	1 Uca	NA	NA	1 Uca	1/1 Uca	**8.3** j
Silver, dissolved	3.2	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA	1 U	1/1 U	3.2 Uj
Zinc, dissolved	100	NA	**2.79**	NA	NA	NA	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	NA	NA	5 U	5 / 5 U	**155**
Iron, dissolved	300	NA	5 U	NA	NA	NA	NA	**9,410**	NA	NA	NA	NA	**695**	NA	NA	**48,000**	NA	NA	NA	NA	NA	NA	**1,980**	NA	NA	**49,900**	**11,000 / 11,100**	**74,300**
Chloride (mg/L)	230	NA	**20.3**	NA	**9.64**	**8.89**	**3.89**	**12.9**	NA	**9100**	**78**	**14.2**	**17.2**	NA	**92.0**	**350**	**290**	**275**	**280**	**442**	**150**	**81.3**	**145**	**270**	**207**	**156**	**475 / 482**	**3,960**
Fluoride (mg/L)	0.96	NA	0.5 U	NA	ND	ND	**0.0807**	0.5 U	NA	ND	**27**	**19.8**	**14.4**	NA	**6.89**	**1.39**	0.200 U	0.800 U	0.800 U	**2.10**	**0.230**	**1.92**	**0.53**	**4.1**	**16.0**	**22.2**	**7.98 / 6.96**	**0.5** U
Nitrate-Nitrogen (mg/L)	10	NA	NA	NA	ND	ND	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	**1.50**	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-Nitrogen (mg/L)	NC	**0.175**	**0.076**	**0.124**	**1.26**	**0.433**	NA	**0.208**	**14.638**	**33.7**	NA	NA	**493**	**6.683**	**1.71**	**3.99**	NA	NA	NA	**1.52**	NA	NA	**5.01**	NA	NA	**5.91**	**4.75 / 4.90**	**35.4**
TPH-Gasoline	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	100 U	NA	NA	NA	NA	NA	100 U	NA	NA	NA
Diesel Range Oil - SGC	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	50 U	NA	NA	NA	NA	NA	50 U	NA	NA	NA
Residual Range Oil - SGC	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250 U	250 U	NA	NA	NA	NA	NA	250 U	NA	NA	NA
Diesel Range Oil	500	NA	NA	NA	NA	NA	82.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	**200** x	**210** x	NA	NA	NA	NA	NA	50 U	NA	NA	NA
Residual Range Oil	500	NA	NA	NA	NA	NA	165 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	250 U	250 U	NA	NA	NA	NA	NA	250 U	NA	NA	NA
Volatile Organic Compounds[1]	Varies	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds	Varies	See Note 2	NA	See Note 2	NA	NA	NA	NA	See Note 2	NA	NA	NA	NA	See Note 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bold - analyte detected
Units - ug/L for except mg/L for chloride, fluoride, nitrate-nitrogen, and ammonia-nitrogen
mg/L - milligrams per liter
ug/L - micrograms per liter
SGC - with silica gel cleanup
1990 GW sample data is not included in this table.
j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
Note 1: Volatile Organic Compounds (VOCs) were analyzed are reported in the Morrison-Knudsen Environmental Services, Draft Phase I Remedial Investigation Report, Maralco Site. Kent, WA. All results were ND.
Note 2: Semi Volatile Organic Compounds (SVOCs) were analyzed and reported in the Morrison-Knudsen Environmental Services, Draft Phase I Remedial Investigation Report, Maralco Site. Kent, WA. All results were ND except Diethylphthalate in MW-1/3 (max 0.5 ug/L), 4-methylphenol in MW-1/2 (max 0.5 ug/L), and dimethylphthalate in MW-1/3(max 0.3 ug/L))
Detected value exceeds PCUL
* Aluminum value is calculated based on EAP document EPA-822-R-18-001, December 2018. The aluminum SL is based on a pH=7, hardness of 100 mg/L CaCO3, and dissolved organic carbon of 2.5 mg/L.
PCUL - Preliminary Cleanup Level
TPH - total petroleum hydrocarbons
NC - no criterion
J - Reported value is an estimate.
U - not detected at listed reporting limit
NA - not analyzed
ND - no detected compounds
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

Table 10 - Groundwater Sampling Field Parameters

Maralco Site - Kent, WA

Well ID	MW-1	MW-2	MW3A	MW-4	MW-5R	MW6	MW-7	MW-8
Date Sampled	**9/14/2022**	**9/14/2022**	**9/13/2022**	**9/13/2022**	**9/13/2022**	**9/13/2022**	**9/13/2022**	**9/14/2022**
Top of PVC Elevation (ft NAVD88)	30.04	30.70	29.97	28.74	29.92	29.65	29.90	27.80
Total Well Depth (ft)	16.05	16.39	13.35	18.34	20.16	13.54	19.9	20.09
Initial Water Level (ft BTOC)	7.95	9.6	6.25	7.41	8.12	5.5	8.3	5.03
Temp (deg C)	12.2	13.7	14.5	13.6	14.9	16.7	17.3	13.7
pH	5.66	6.05	6.46	6.58	6.71	6.84	6.7	5.96
Conductivity (us/cm)	80.2	161.1	381.2	1,572	1,307	1,531	1,960	10,895
DO (mg/L)	6.03	1.39	1.37	1.35	1.57	1.61	1.16	1.37
ORP (mV)	19.90	0.80	65.60	-74.60	25.20	-82.50	-9.30	79.60
Turbidity (NTU)	1.27	8.5	8.15	7.44	17.3	3.9	27.2	5.44
Color/Odor	clear/none	clear/none	slightly cloudy/none	slight peaty color /none	clear/none	slight peaty color /none	slightly yellow color/none	clear/none

Notes:

ft BTOC - feet below top of casing

dec C = degree Celsius

us/cm = micro siemens per centimeter

mg/L = milligrams per liter

mV =millivolts

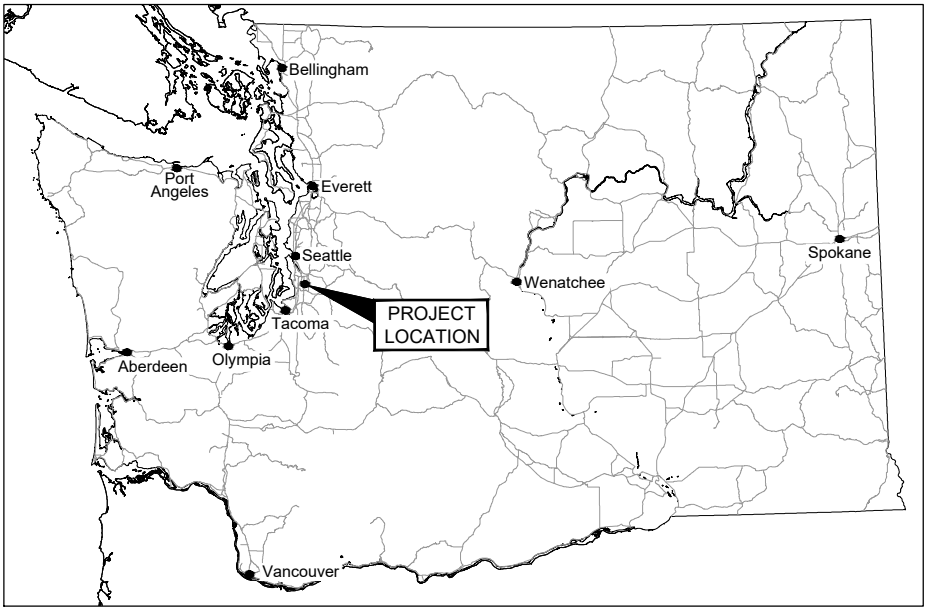
NTU = Nephelometric Turbidity Units

Table 11 - Soil Remediation Level
Maralco Site - Kent, WA

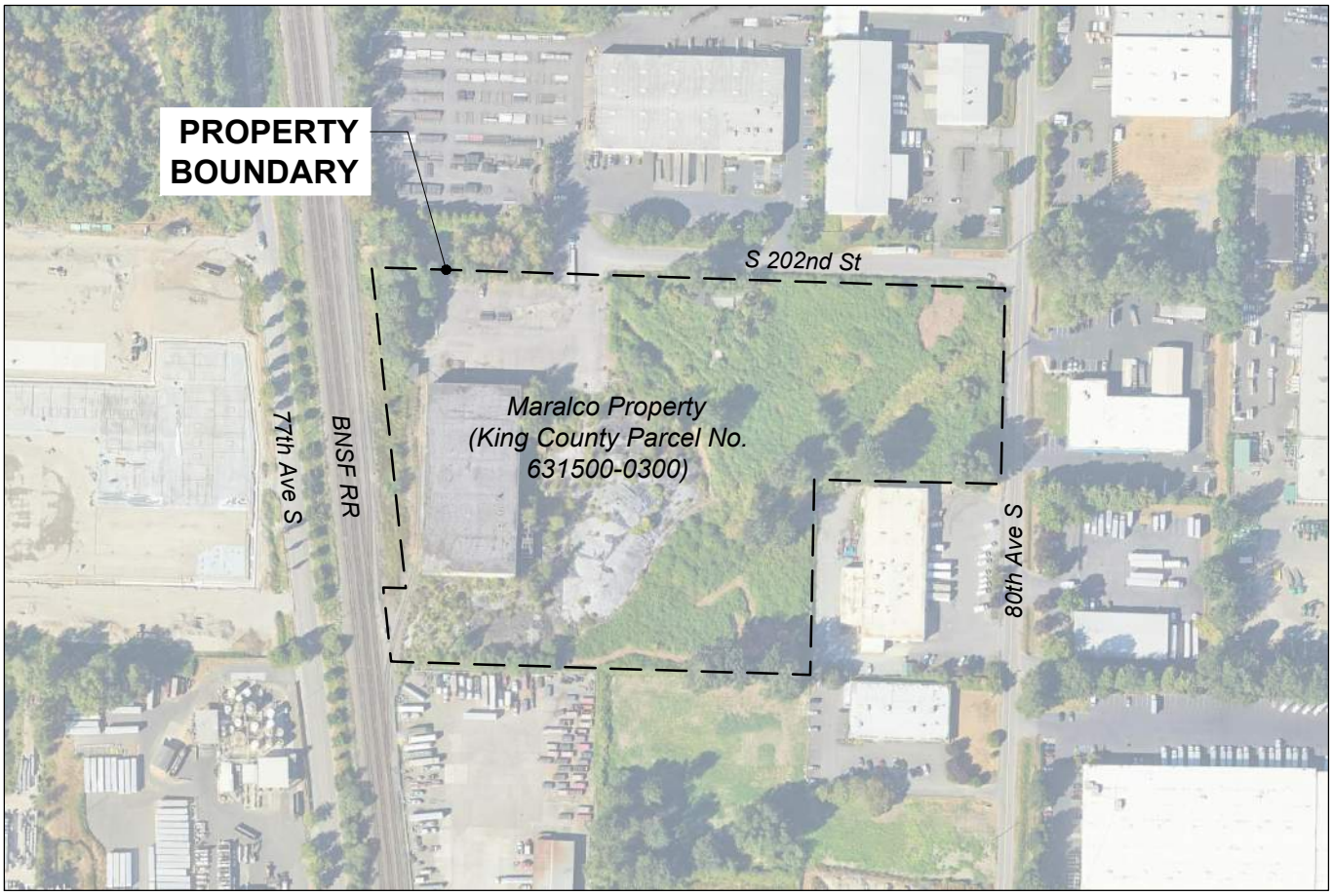
Chemical (all concentrations in mg/kg)	Most Stringent Soil PCUL Vadose Zone (Appendix A)	Basis	Most Stringent Soil PCUL Saturated Zone (Appendix A)	Basis	Constituent of Interest?
Metals					
Aluminum	33000	NB	33000	NB	Yes
Antimony	5.2	NB	5.2	NB	Yes
Arsenic	7.3	NB	7.3	NB	Yes
Cadmium	0.77	NB	0.77	NB	Yes
Chromium, total[1]	1500	SW	74	SW	Yes
Cobalt	11	NB	11	NB	Yes
Copper	36	NB	36	NB	Yes
Iron	36000	NB	36000	NB	Yes
Lead	250	DC	24	NB	Yes
Manganese	1100	NB	1100	NB	Yes
Mercury, inorganic	0.07	NB	0.07	NB	Yes
Nickel	68	SW	48	NB	Yes
Selenium	0.78	NB	0.78	NB	Yes
Silver	0.61	NB	0.61	NB	Yes
Zinc	130	SW	85	NB	Yes
Semi-Volatile Organic Compounds - Polycyclic Aromatic Hydrocarbons					
Fluoranthene	0.02	Sed	0.001	Sed	Yes
Fluorene	1.6	GW	0.080	GW	Yes
2-Methylnaphthalene	1.7	DW	0.089	DW	Yes
Naphthalene	4.5	DW	0.24	DW	Yes
Pyrene	0.02	Sed	0.001	Sed	Yes
Total Carcinogenic Polycyclic Aromatic Hydrocarbons (TEQ)	0.084	Sed	0.0042	Sed	Yes
Other Semi-Volatile Organic Compounds					
Bis(2-ethylhexyl) phthalate	0.10	SW	0.005	SW	Yes
Di-n-octyl phthalate	0.55	Sed	0.027	Sed	Yes
4-Methylphenol (p-cresol)	1.5	Sed	0.085	Sed	Yes
Benzene	0.0024	SW	0.00015	DW	Yes
Toluene	0.37	SW	0.023	GW	Yes
Total xylenes	0.51	SW	0.030	GW	Yes

Notes:
mg/kg - milligrams per kilogram dry weight
DC - direct contact
DW - leaching to protect drinking water
NB - natural background
SW - leaching to protect surface water via groundwater
Sed - leaching to protect sediment via groundwater
TEQ - Total Toxic Equivalent Concentration (per Ecology's Implementation Memorandum #10, dated April 20, 2015).
1. Based on Chromium, trivalent.

Figures



WASHINGTON LOCATION MAP



VICINITY MAP

0 300 600

SCALE IN FEET

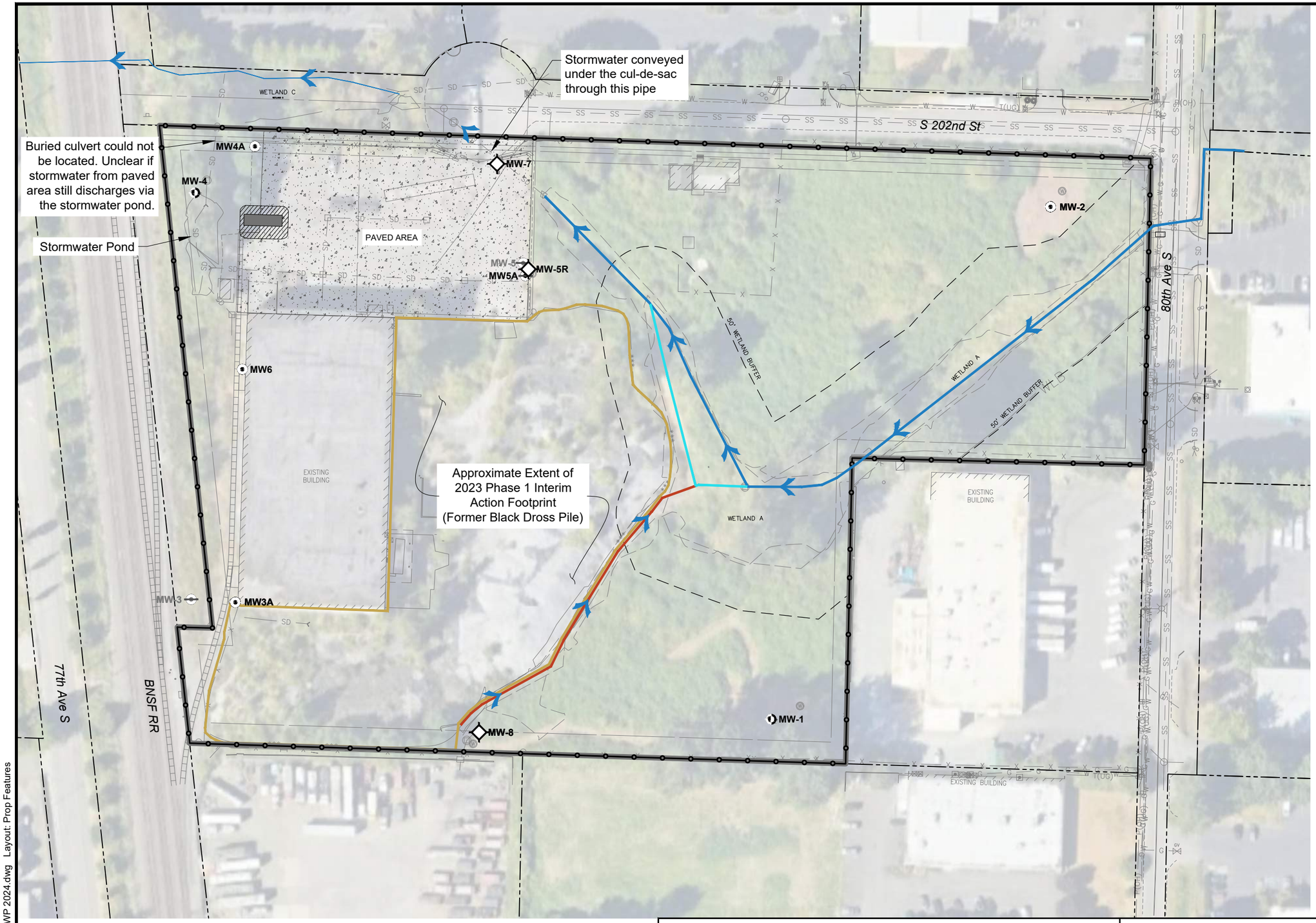
Source: Google Earth. Image date 8/25/2022

CRETE CONSULTING, INC.

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 1
Vicinity Map

File: Maralco Vicmap.dwg Layout: Vicmap



LEGEND

- Wetland Boundary
- Wetland Buffer, 50 Feet
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Property Ditch Alignment (Unnamed Ditch)
- Monitoring Well (Crete, 2022)
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Stormwater Surface Flow Direction (Approximate)
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary

NOTE

Wetland survey provided by Barghausen Consulting Engineers, Inc., dated June 1, 2023.

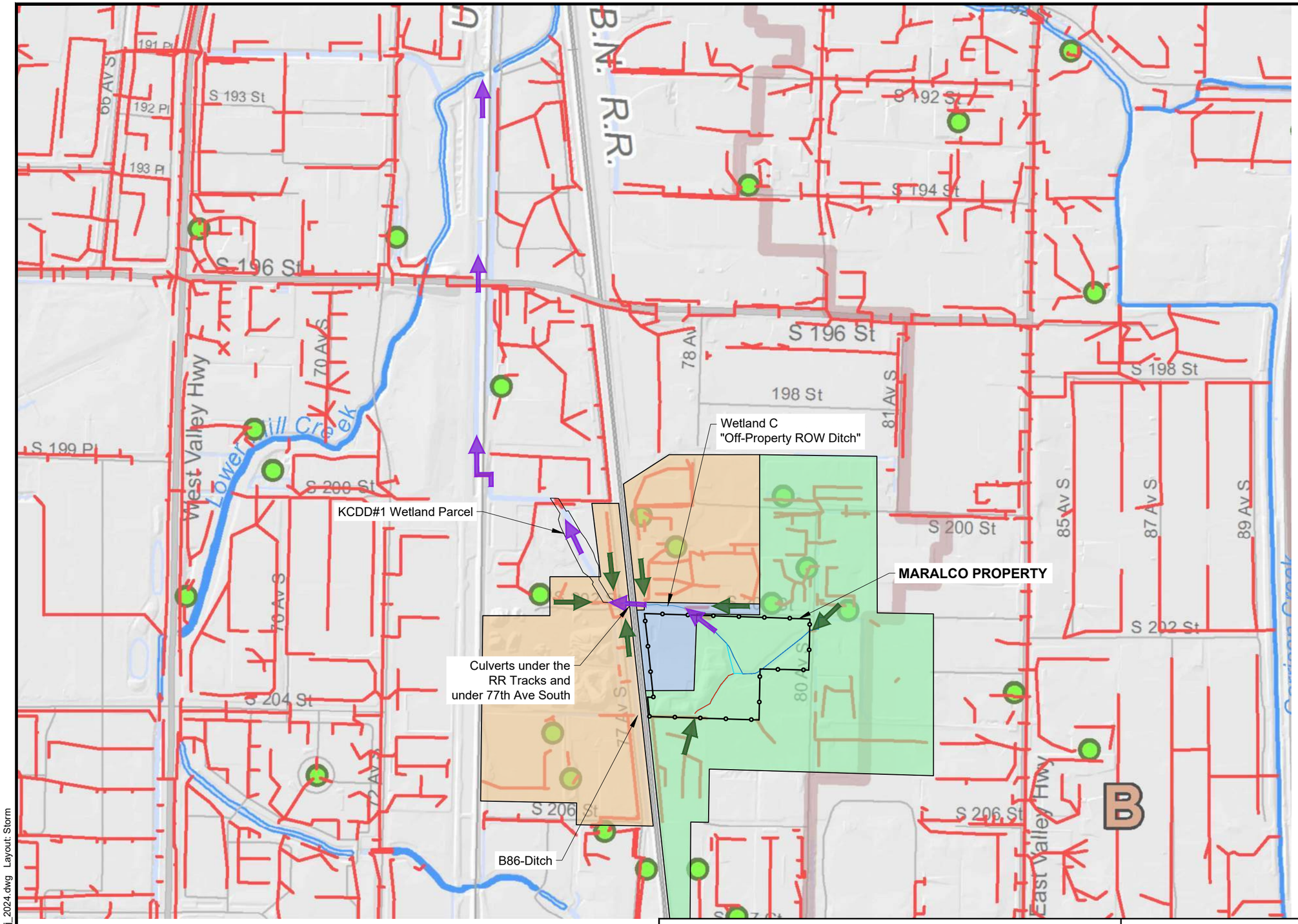
CRETE CONSULTING, INC.

0 100 200
SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 2
Property Features

File: Maralco Site_IAWP 2024.dwg Layout: Prop Features



Source: "Surface Drainage Facilities" City of Kent GIS Department website, dated August 2019.

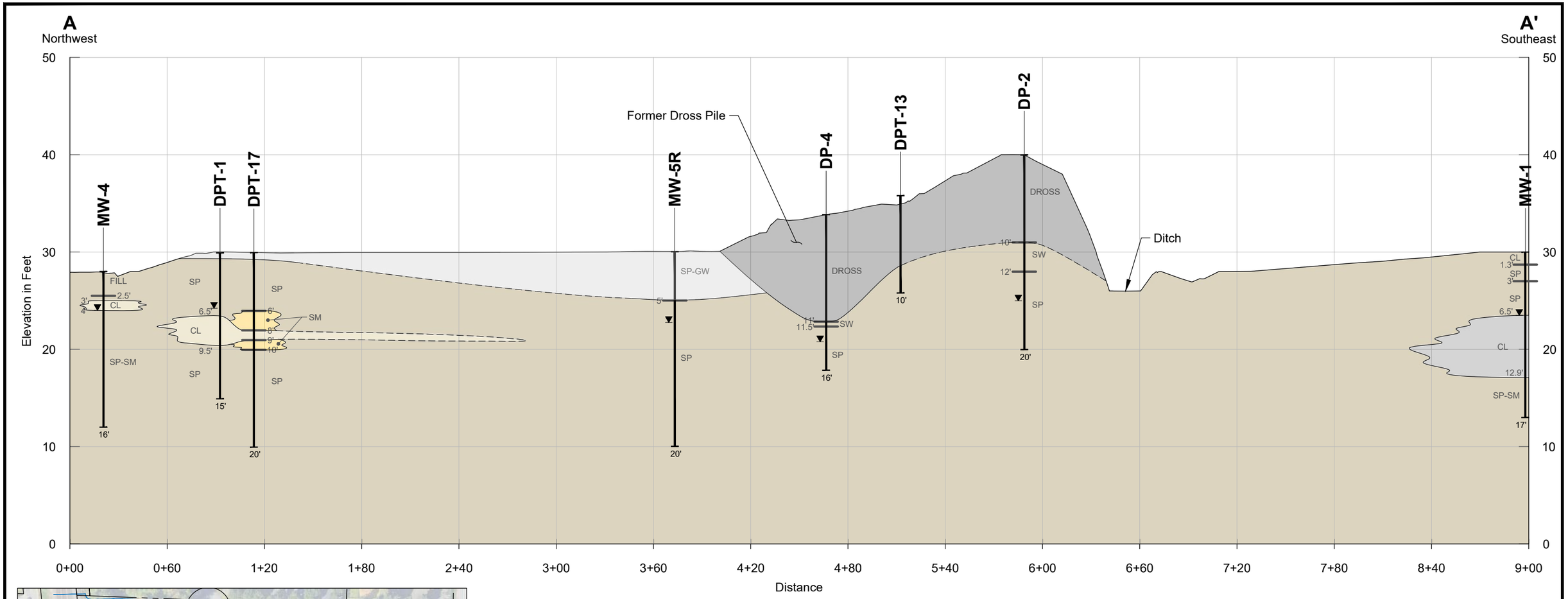
CRETE CONSULTING, INC.

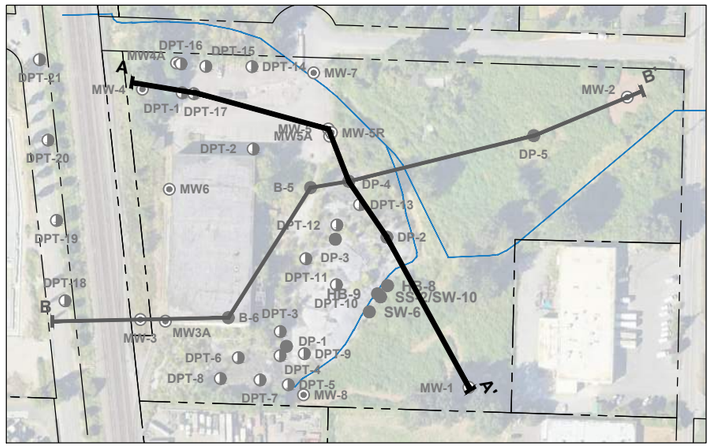
0 600 1200
SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 3
Current Stormwater Flow Conditions

File: Maralco Site Adj_2024.dwg Layout: Storm





KEY MAP

LEGEND

B-1	Exploration Designation
2'	Noted Lithologic Contact Depth Below Ground Surface (in Feet)
SM	Unified Soil Classification System
▼	Water Level Observed at Time of Drilling
	Approximate Distinct Lithologic Contact
16.5'	Depth of Exploration (in Feet)

SOIL CLASSIFICATIONS

SP	sand or sand-gravel mixtures, poorly-graded
SM	silty sand, sand and silt mixtures, minor to no gravel
CL	clay, low to moderate plasticity
ML	silt, sometimes with sand/clay/gravel
GW	gravel or sand-gravel mixtures, well-graded, fine to coarse
SW	sand or sand-gravel mixtures, well-graded, fine to coarse
CH	clay, high plasticity

0 10 20
VERTICAL SCALE IN FEET

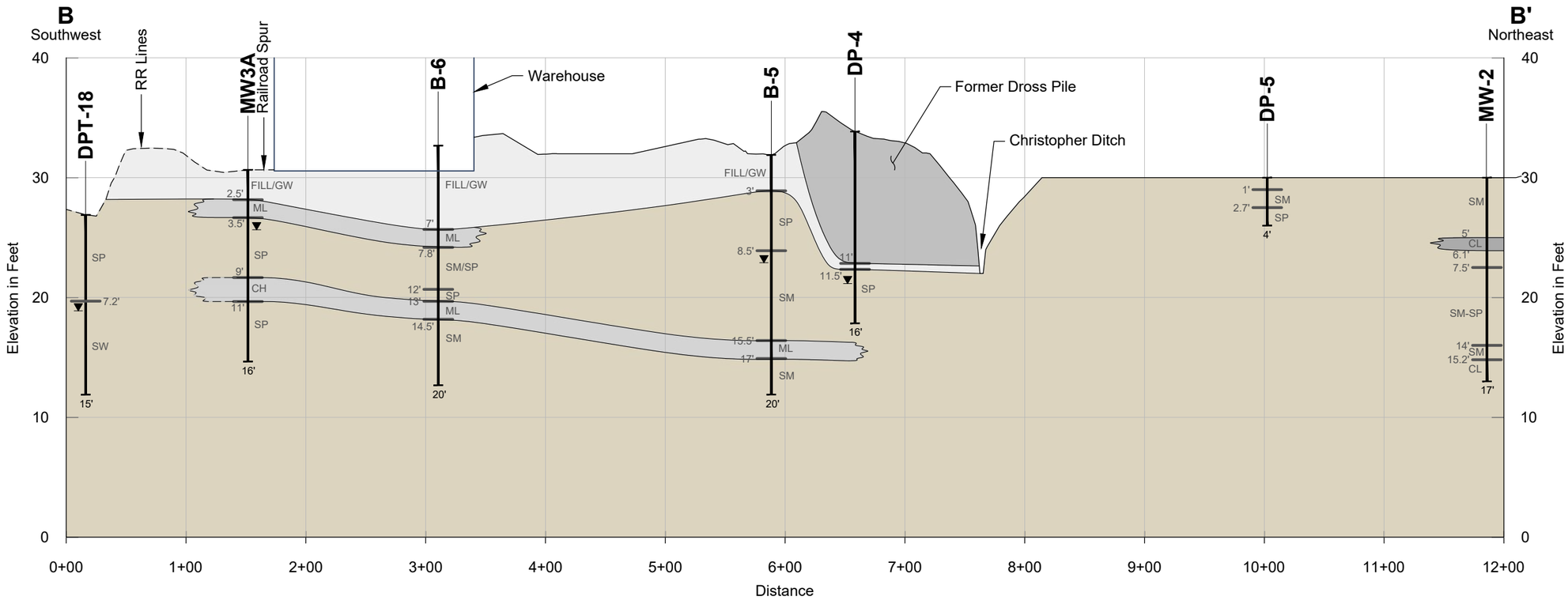
0 60 120
HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 6X

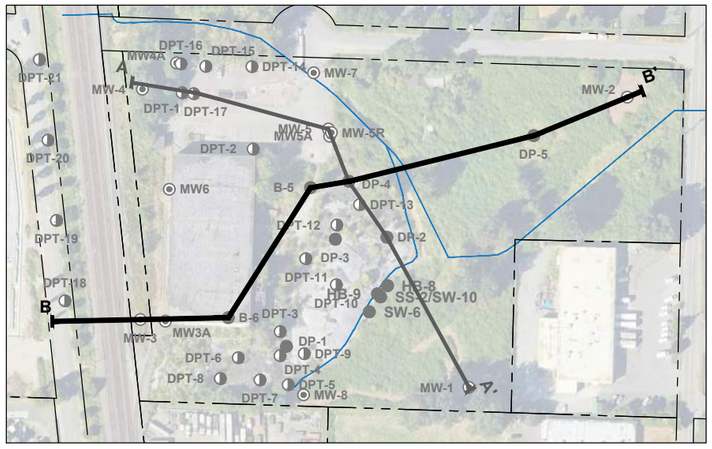
CRETE CONSULTING, INC.

Maralco Site
7730 South 202nd Street
Kent, Washington
8/30/2024

Figure 4
Lithologic Cross-Section A-A'

File: Maralco Sections_2023.dwg Layout: Section A





KEY MAP

LEGEND

B-1	Exploration Designation
2' / SM / 16.5'	Noted Lithologic Contact Depth Below Ground Surface (in Feet)
SM	Unified Soil Classification System
▼	Water Level Observed at Time of Drilling
	Approximate Distinct Lithologic Contact
	Depth of Exploration (in Feet)

SOIL DESCRIPTIONS

SP	sand or sand-gravel mixtures, poorly-graded
SM	silty sand, sand and silt mixtures, minor to no gravel
CL	clay, low to moderate plasticity
ML	silt, sometimes with sand/clay/gravel
GW	gravel or sand-gravel mixtures, well-graded, fine to coarse
SW	sand or sand-gravel mixtures, well-graded, fine to coarse
CH	clay, high plasticity

0 10 20
VERTICAL SCALE IN FEET

0 100 200
HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 10X

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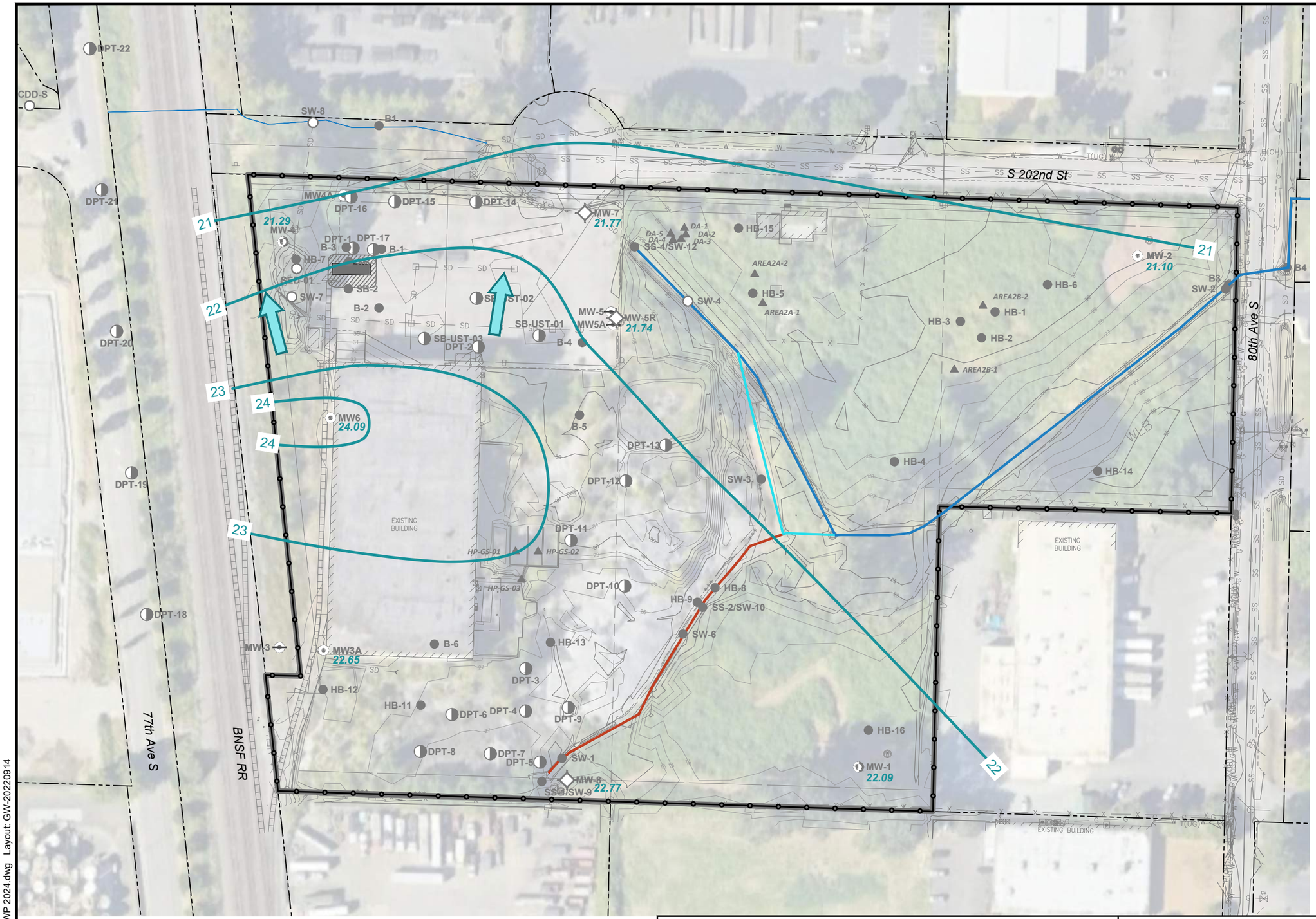
Maralco Site
7730 South 202nd Street
Kent, Washington
8/30/2024

Figure 5
Lithologic Cross-Section B-B'

File: Maralco Sections_2023.dwg Layout: Section B



LEGEND

- 21.10 — Measured Groundwater Elevation
- 22 — Approximate Groundwater Elevation Contour
- Approximate Groundwater Flow Direction
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Unnamed Ditch Alignment
- Monitoring Well (Crete, 2022)
- Direct Push Borehole (Crete, 2021 & 2022)
- Sediment Sample
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Historical Borehole or Ditch Sample Location
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary

No substantial rainfall for many weeks prior to gauging. Groundwater elevation below ditches and no recharge from ditches.

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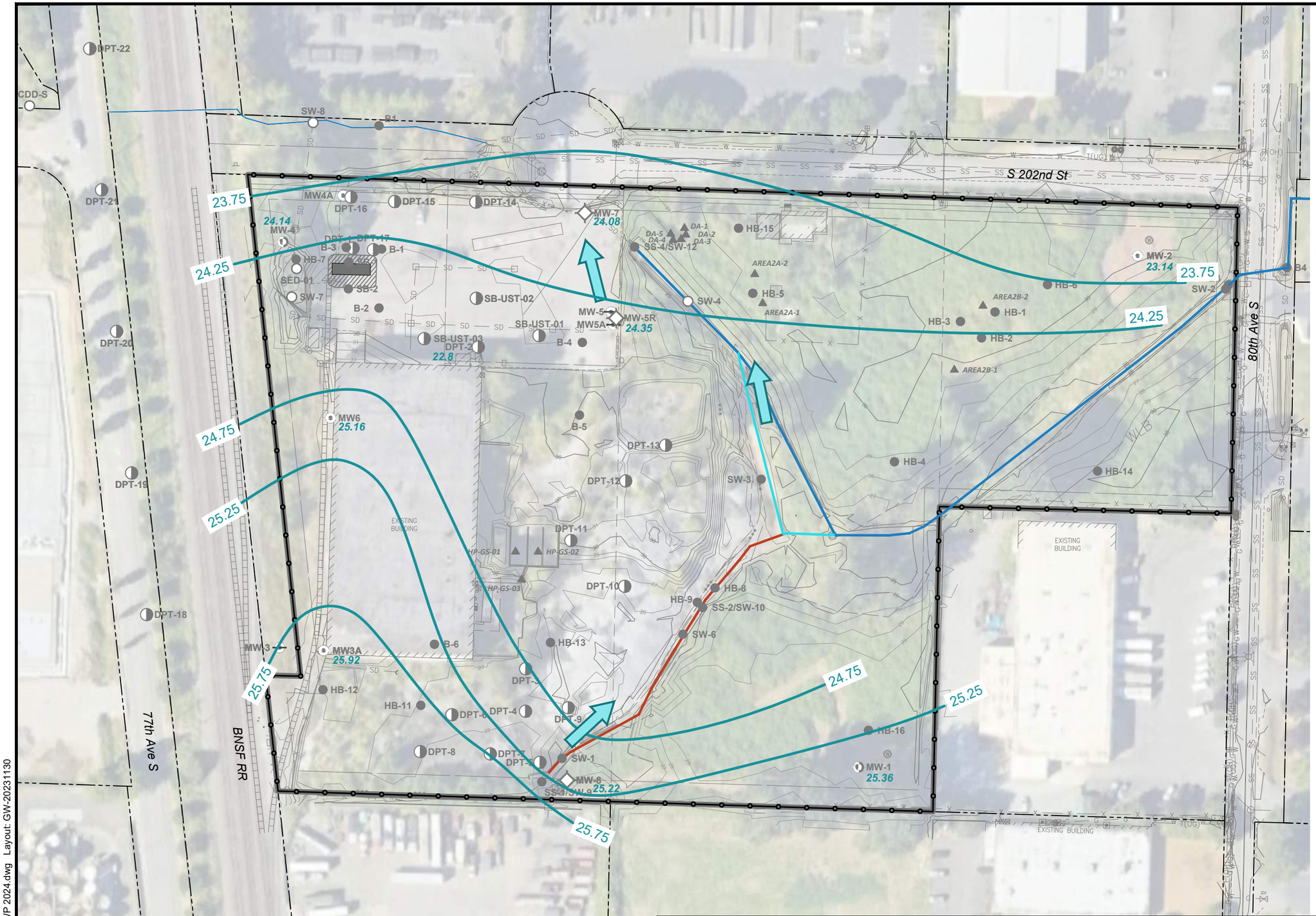
0 100 200
SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 6
Groundwater Flow Map
September 14, 2022

File: Maralco Site_IAWP 2024.dwg Layout: GW-20220914



N

LEGEND

- 21.10 — Measured Groundwater Elevation
- 22 — Approximate Groundwater Elevation Contour
- Approximate Groundwater Flow Direction
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Unnamed Ditch Alignment
- Monitoring Well (Crete, 2022)
- Direct Push Borehole (Crete, 2021 & 2022)
- Sediment Sample
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Historical Borehole or Ditch Sample Location
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary

NOTE

Standing water present in on-property ditches.

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0 100 200

SCALE IN FEET

Maralco Site
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Kent, Washington
11/21/2024

Figure 7
Groundwater Flow Map
November 30, 2023

File: Maralco Site_IAWP 2024.dwg Layout: GW-20231130

Stormwater Discharge will Connect to the Existing Manhole

Treated Stormwater from Paved Areas Discharges through Water Quality Vault to Existing Manhole

Post Development Stormwater Path (Buried Culvert and Swale)

S 202nd St

Roof Drainage

Roof Drainage

80th Ave S

PROPOSED BUILDING

EXISTING BUILDING

Wetland Creation

Post Development Stormwater Path (Buried Culvert)

77th Ave S

BNSF RR

N

LEGEND

- Christopher Ditch
- Property Boundary
- Parcel Boundary
- Buffer Restoration
- Wetland Creation
- Wetland Enhancement/Buffer
- Post Development Stormwater Surface Flow Direction (Approximate)

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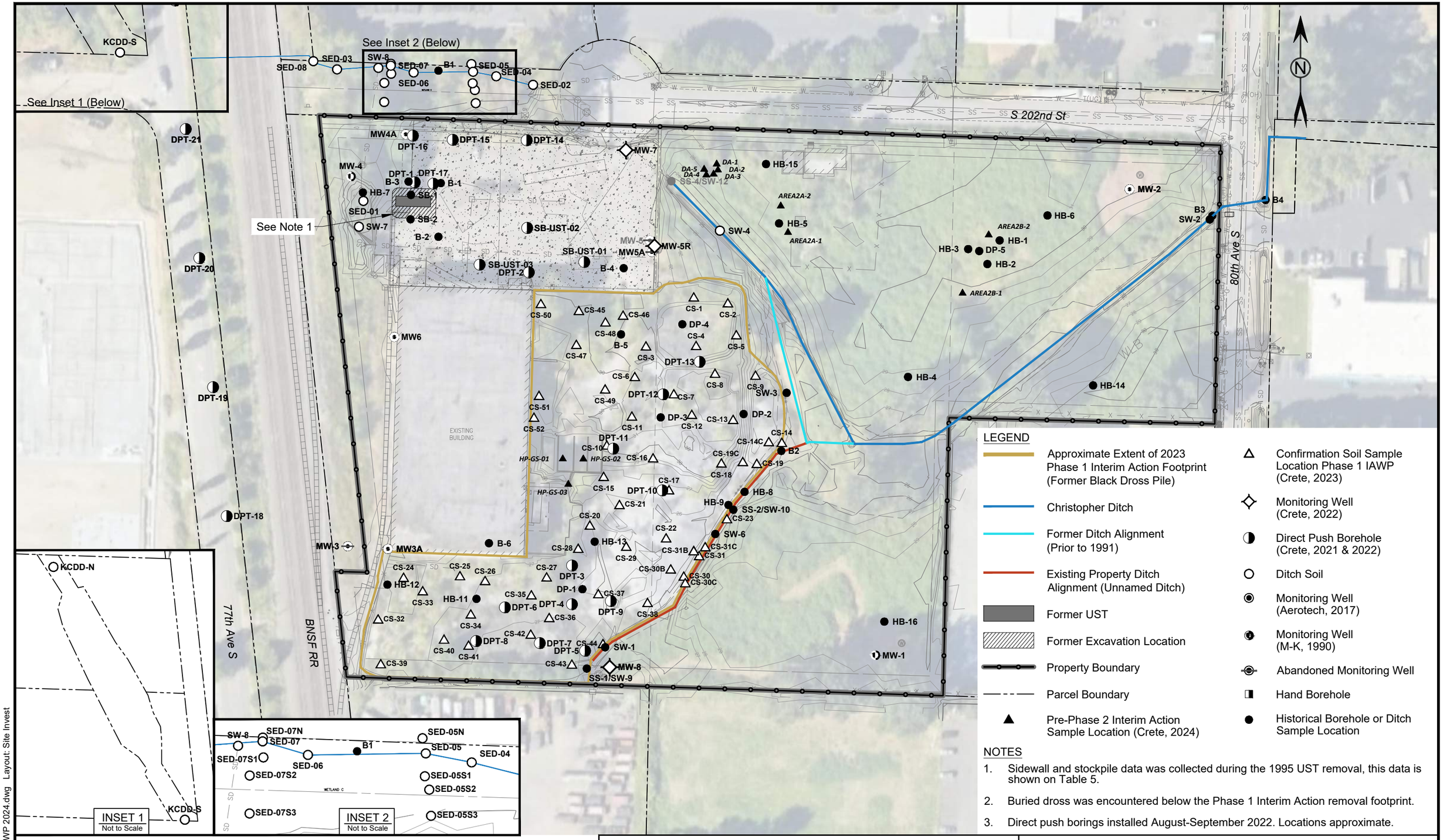
0 100 200

SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 8
Property Development Plan

File: Maralco Site_IAWP 2024.dwg Layout: Concept Plan



LEGEND

- Approximate Extent of 2023 Phase 1 Interim Action Footprint (Former Black Dross Pile)
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Property Ditch Alignment (Unnamed Ditch)
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary
- Pre-Phase 2 Interim Action Sample Location (Crete, 2024)
- Confirmation Soil Sample Location Phase 1 IAWP (Crete, 2023)
- Monitoring Well (Crete, 2022)
- Direct Push Borehole (Crete, 2021 & 2022)
- Ditch Soil
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Hand Borehole
- Historical Borehole or Ditch Sample Location

NOTES

1. Sidewall and stockpile data was collected during the 1995 UST removal, this data is shown on Table 5.
2. Buried dross was encountered below the Phase 1 Interim Action removal footprint.
3. Direct push borings installed August-September 2022. Locations approximate.

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Maralco Site
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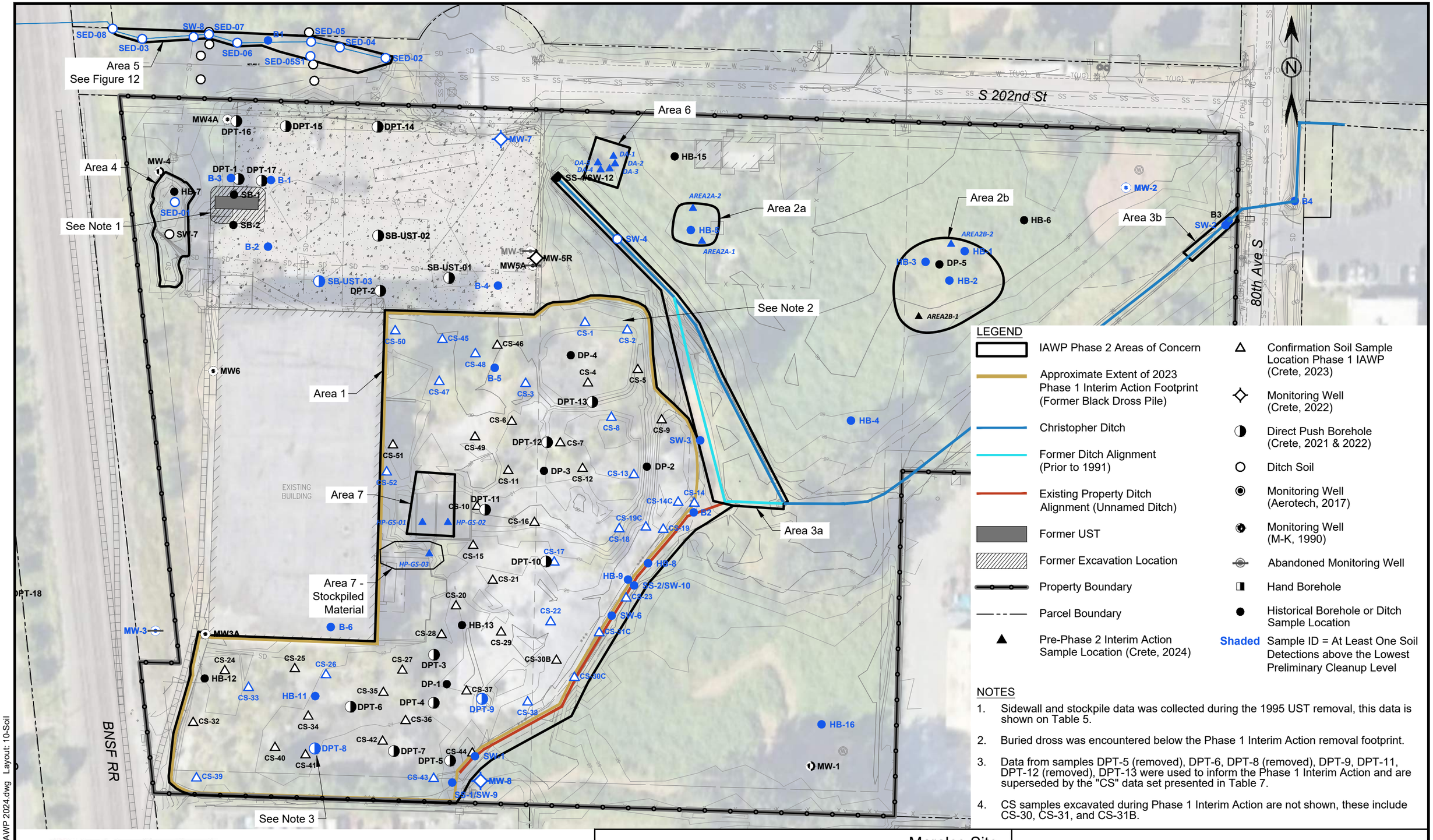
Kent, Washington
11/21/2024

Figure 9
Extent of Site Investigation Efforts

File: Maralco Site_IAWP 2024.dwg Layout: Site Invest



LEGEND

- IAWP Phase 2 Areas of Concern
- Approximate Extent of 2023 Phase 1 Interim Action Footprint (Former Black Dross Pile)
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Property Ditch Alignment (Unnamed Ditch)
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary
- Pre-Phase 2 Interim Action Sample Location (Crete, 2024)
- Confirmation Soil Sample Location Phase 1 IAWP (Crete, 2023)
- Monitoring Well (Crete, 2022)
- Direct Push Borehole (Crete, 2021 & 2022)
- Ditch Soil
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Hand Borehole
- Historical Borehole or Ditch Sample Location
- **Shaded** Sample ID = At Least One Soil Detections above the Lowest Preliminary Cleanup Level

NOTES

1. Sidewall and stockpile data was collected during the 1995 UST removal, this data is shown on Table 5.
2. Buried dross was encountered below the Phase 1 Interim Action removal footprint.
3. Data from samples DPT-5 (removed), DPT-6, DPT-8 (removed), DPT-9, DPT-11, DPT-12 (removed), DPT-13 were used to inform the Phase 1 Interim Action and are superseded by the "CS" data set presented in Table 7.
4. CS samples excavated during Phase 1 Interim Action are not shown, these include CS-30, CS-31, and CS-31B.

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Maralco Site
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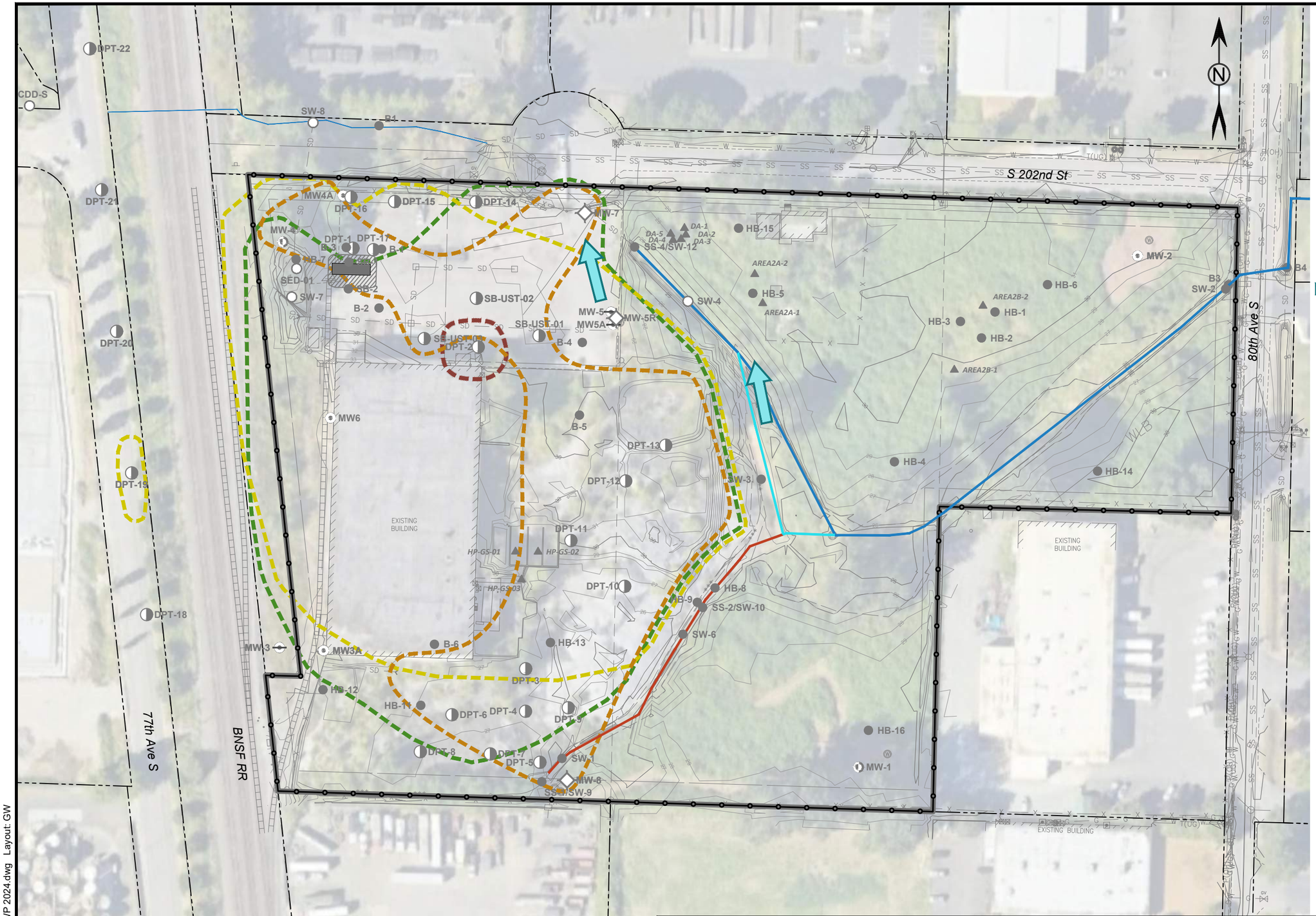
Kent, Washington
11/21/2024

Figure 10
Extent of On-Property Soil Contamination

File: Maralco Site_IAWP 2024.dwg Layout: 10-Soil



LEGEND

- Estimated Extent of Diesel in Groundwater (Above PCUL of 500ug/L)
- Estimated Extent of Fluoride in Groundwater (Above PCUL of 0.96mg/L)
- Estimated Extent of Chloride in Groundwater (Above PCUL of 230mg/L)
- Estimated Extent of Dissolved As in Groundwater (Above PCUL of 8.0ug/L)
- Approximate Groundwater Flow Direction
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Unnamed Ditch Alignment
- Monitoring Well (Crete, 2022)
- Direct Push Borehole (Crete, 2021 & 2022)
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Historical Borehole or Ditch Sample Location
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary

mg/L = milligram per liter
ug/L = micrograms per liter
PCUL = Preliminary Cleanup Level

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0 100 200
SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 11
Extent of Groundwater Impacts

File: Maralco Site_IAWP 2024.dwg Layout: GW

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel
SED-08	0 - 0.5	7/11/23	**19.8**	**1.34**	**18.9**	**137**	**9.62**
	0.5 - 1.0	7/11/23	**9.5**	**1.78**	**30.6**	**196**	**14.8**
	1.0 - 1.5	7/11/23	**5.85**	1 U	**16.2**	**95.6**	**7.18**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel
SED-06	0 - 0.5	7/11/23	**25.9**	**1.92**	**12.3**	**89.4**	**6.96**
	0.5 - 1.0	7/11/23	**9.63**	**2.51**	**26.3**	**277**	**13.0**
	1.0 - 1.5	7/11/23	**11.4**	**4.65**	**23.1**	**189**	**14.7**
	1.5 - 2.0	7/11/23	**3.36**	1 U	**8.35**	**16.1**	**5.15**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
B1	Not Known	6/25/87	**19**	2.0 U	36	**262**	31	NA	**365**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel
SED-04	0 - 0.5	7/11/23	**16.3**	**1.04**	**14.9**	**82.6**	**8.12**
	0.5 - 1.0	7/11/23	**6.86**	1 U	**11.7**	**44.0**	**9.74**

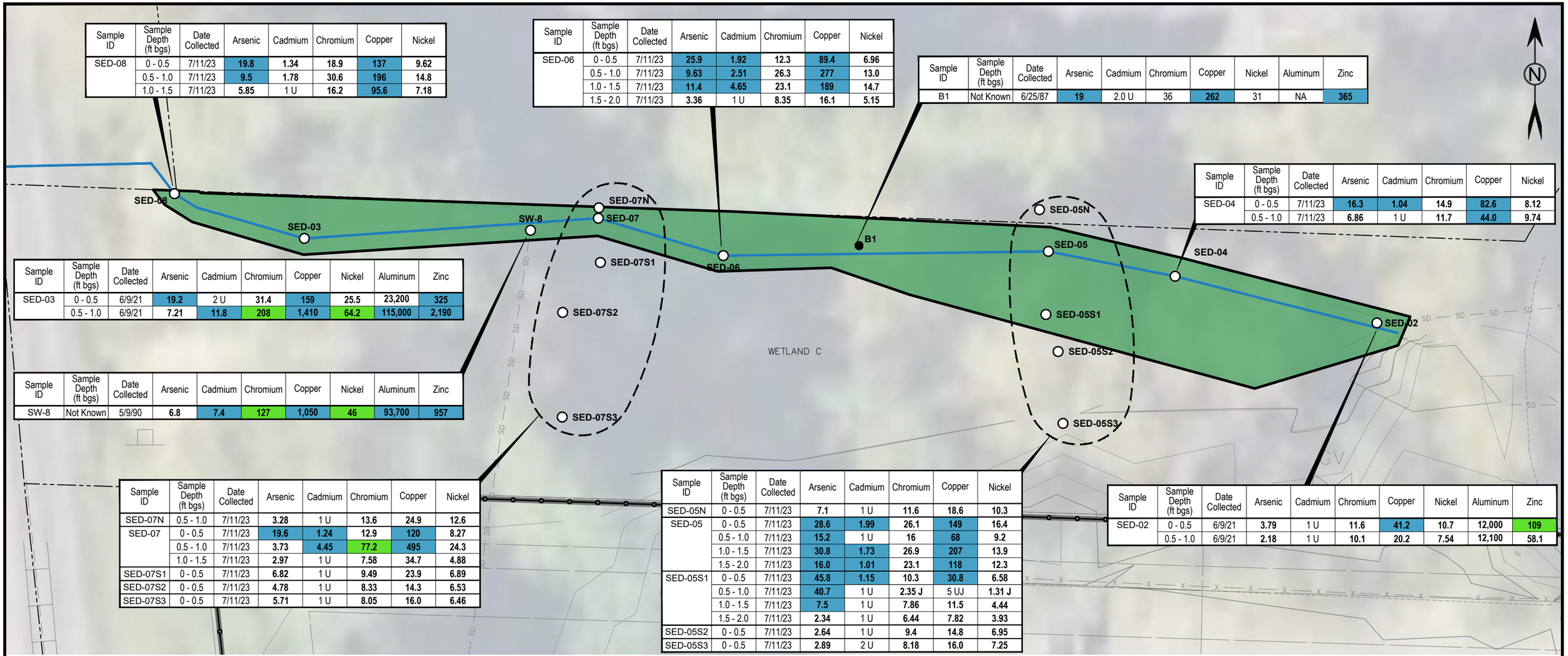
Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
SED-03	0 - 0.5	6/9/21	**19.2**	2 U	**31.4**	**159**	**25.5**	**23,200**	**325**
	0.5 - 1.0	6/9/21	**7.21**	**11.8**	**208**	**1,410**	**64.2**	**115,000**	**2,190**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
SW-8	Not Known	5/9/90	**6.8**	**7.4**	**127**	**1,050**	**46**	**93,700**	**957**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel
SED-07N	0.5 - 1.0	7/11/23	**3.28**	1 U	**13.6**	**24.9**	**12.6**
SED-07	0 - 0.5	7/11/23	**19.6**	**1.24**	**12.9**	**120**	**8.27**
	0.5 - 1.0	7/11/23	**3.73**	**4.45**	**77.2**	**495**	**24.3**
	1.0 - 1.5	7/11/23	**2.97**	1 U	**7.58**	**34.7**	**4.88**
SED-07S1	0 - 0.5	7/11/23	**6.82**	1 U	**9.49**	**23.9**	**6.89**
SED-07S2	0 - 0.5	7/11/23	**4.78**	1 U	**8.33**	**14.3**	**6.53**
SED-07S3	0 - 0.5	7/11/23	**5.71**	1 U	**8.05**	**16.0**	**6.46**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel
SED-05N	0 - 0.5	7/11/23	**7.1**	1 U	**11.6**	**18.6**	**10.3**
SED-05	0 - 0.5	7/11/23	**28.6**	**1.99**	**26.1**	**149**	**16.4**
	0.5 - 1.0	7/11/23	**15.2**	1 U	**16**	**68**	**9.2**
	1.0 - 1.5	7/11/23	**30.8**	**1.73**	**26.9**	**207**	**13.9**
	1.5 - 2.0	7/11/23	**16.0**	**1.01**	**23.1**	**118**	**12.3**
SED-05S1	0 - 0.5	7/11/23	**45.8**	**1.15**	**10.3**	**30.8**	**6.58**
	0.5 - 1.0	7/11/23	**40.7**	1 U	**2.35 J**	5 UJ	**1.31 J**
	1.0 - 1.5	7/11/23	**7.5**	1 U	**7.86**	**11.5**	**4.44**
	1.5 - 2.0	7/11/23	**2.34**	1 U	**6.44**	**7.82**	**3.93**
SED-05S2	0 - 0.5	7/11/23	**2.64**	1 U	**9.4**	**14.8**	**6.95**
SED-05S3	0 - 0.5	7/11/23	**2.89**	2 U	**8.18**	**16.0**	**7.25**

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
SED-02	0 - 0.5	6/9/21	**3.79**	1 U	**11.6**	**41.2**	**10.7**	**12,000**	**109**
	0.5 - 1.0	6/9/21	**2.18**	1 U	**10.1**	**20.2**	**7.54**	**12,100**	**58.1**



LEGEND

- Sediment Sample
- IAWP Phase 2 Areas of Concern
- Christopher Ditch
- Property Boundary
- Parcel Boundary
- Historical Borehole or Ditch Sample Location

mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)

Bold = Detection
Shading = PCUL - Soil Protective of SW Vadose
Shading = PCUL - Soil Protective of SW Saturated

Analytical Data

Sample ID	Sample Depth (ft bgs)	Date Collected	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
SW-8	Not Known	5/9/90	**6.8**	**7.4**	**127**	**1,050**	**46**	**93,700**	**957**

Date Sampled

Result

	Arsenic	Cadmium	Chromium	Copper	Nickel	Aluminum	Zinc
PCUL - Soil Protective of SW Vadose SL (mg/kg)	**7.3**	**0.77**	**1500**	**36**	**68**	**33,000**	**130**
PCUL - Soil Protective of SW Saturated SL (mg/kg)	**7.3**	**0.77**	**74**	**36**	**48**	**33,000**	**85**

NOTE
Wetland survey provided by Barghausen Consulting Engineers, Inc., dated June 1, 2023.

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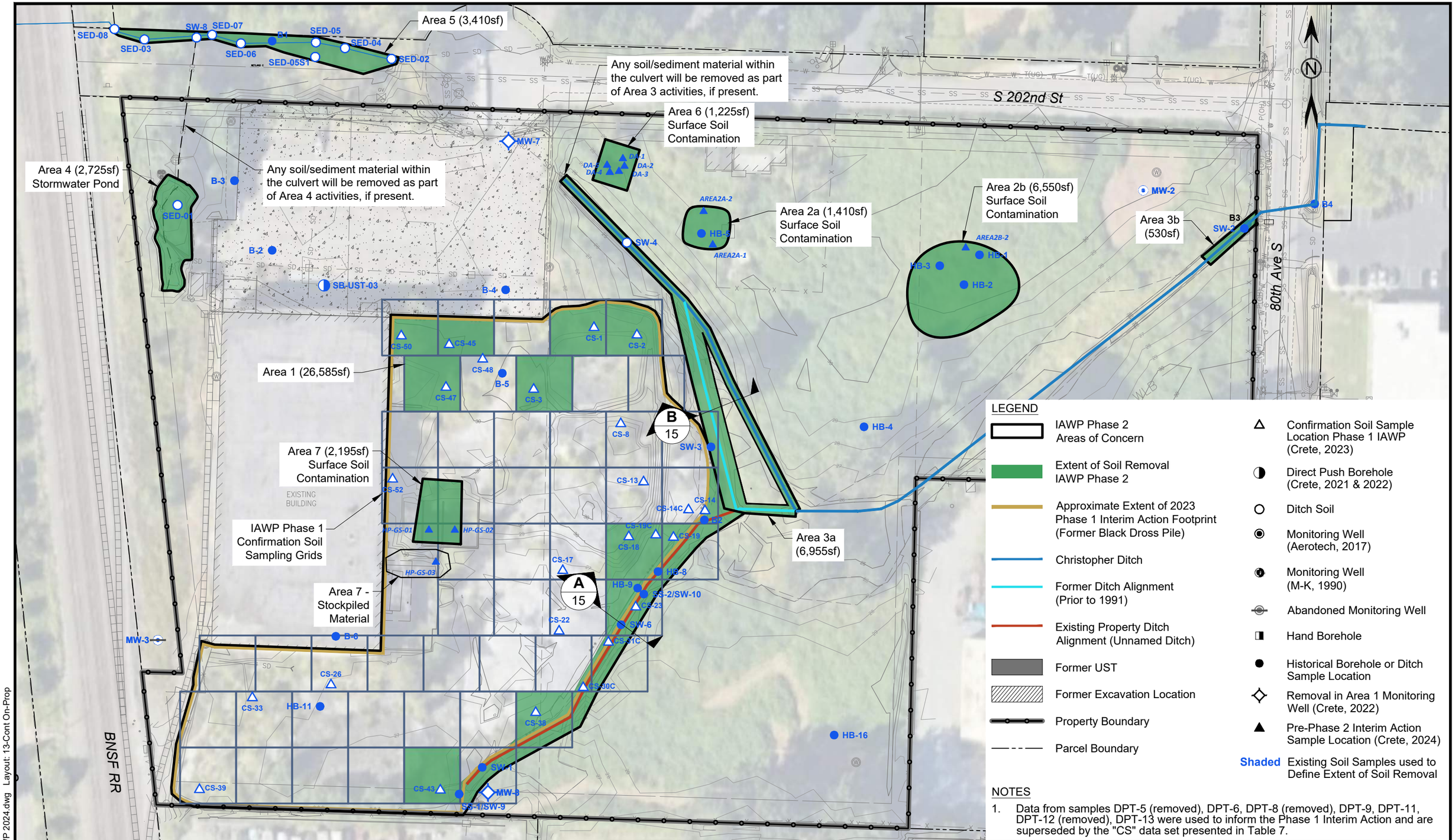
0 20 40
SCALE IN FEET

Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 12
Extent of 202nd Street Right-of-Way Ditch Soil Contamination

File: Maralco Site_IAWP 2024.dwg Layout: Ditch off-prop



LEGEND

- IAWP Phase 2 Areas of Concern
- Extent of Soil Removal IAWP Phase 2
- Approximate Extent of 2023 Phase 1 Interim Action Footprint (Former Black Dross Pile)
- Christopher Ditch
- Former Ditch Alignment (Prior to 1991)
- Existing Property Ditch Alignment (Unnamed Ditch)
- Former UST
- Former Excavation Location
- Property Boundary
- Parcel Boundary
- Confirmation Soil Sample Location Phase 1 IAWP (Crete, 2023)
- Direct Push Borehole (Crete, 2021 & 2022)
- Ditch Soil
- Monitoring Well (Aerotech, 2017)
- Monitoring Well (M-K, 1990)
- Abandoned Monitoring Well
- Hand Borehole
- Historical Borehole or Ditch Sample Location
- Removal in Area 1 Monitoring Well (Crete, 2022)
- Pre-Phase 2 Interim Action Sample Location (Crete, 2024)
- **Shaded** Existing Soil Samples used to Define Extent of Soil Removal

NOTES

1. Data from samples DPT-5 (removed), DPT-6, DPT-8 (removed), DPT-9, DPT-11, DPT-12 (removed), DPT-13 were used to inform the Phase 1 Interim Action and are superseded by the "CS" data set presented in Table 7.

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0 80 160
SCALE IN FEET

Maralco Site
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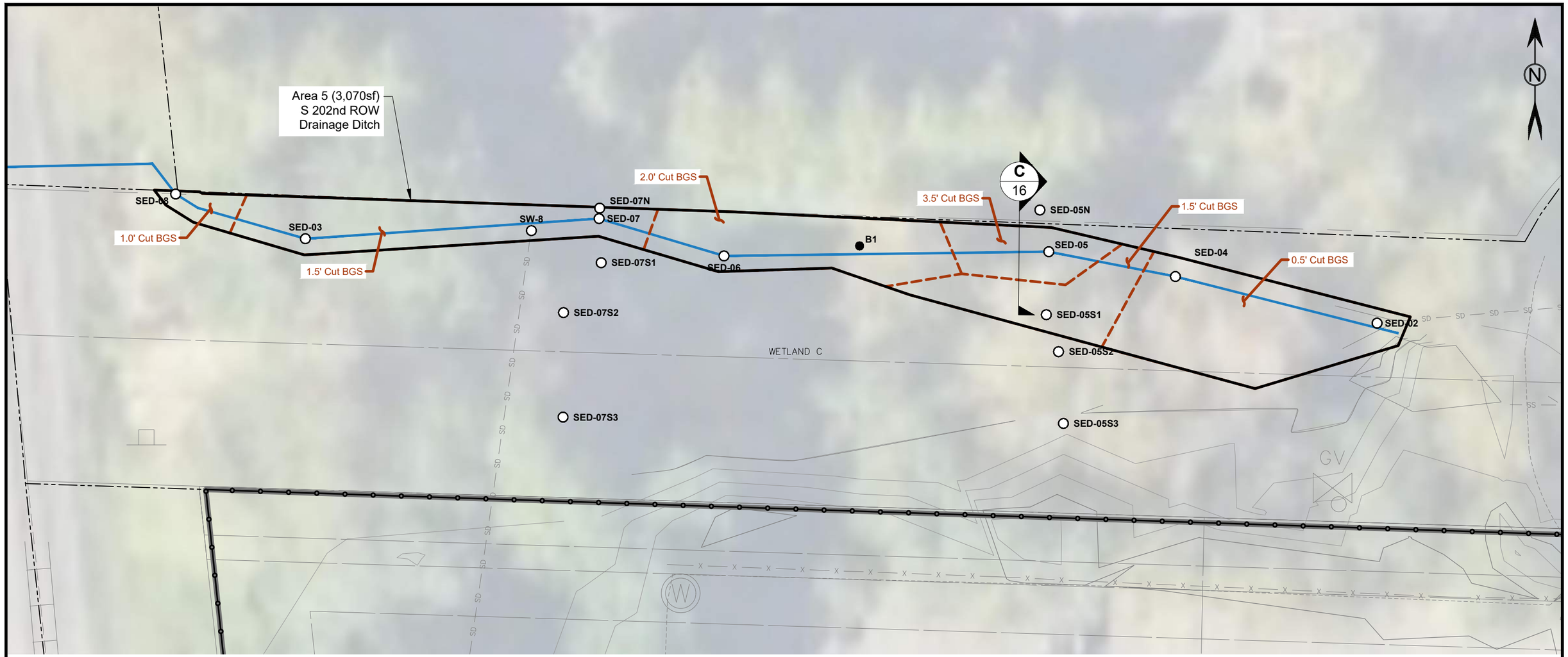
Kent, Washington
11/21/2024

Figure 13
IAWP Phase 2 Action
Extent of Contaminated Soil Removal Areas

File: Maralco Site_IAWP 2024.dwg Layout: 13-Cont On-Prop



LEGEND

- Sediment Sample
- IAWP Phase 2 Areas of Concern
- Excavation Contours
- Christopher Ditch
- Property Boundary
- Parcel Boundary
- Historical Borehole or Ditch Sample Location

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0 20 60
SCALE IN FEET

NOTE
Wetland survey provided by Barghausen Consulting Engineers, Inc., dated June 1, 2023.

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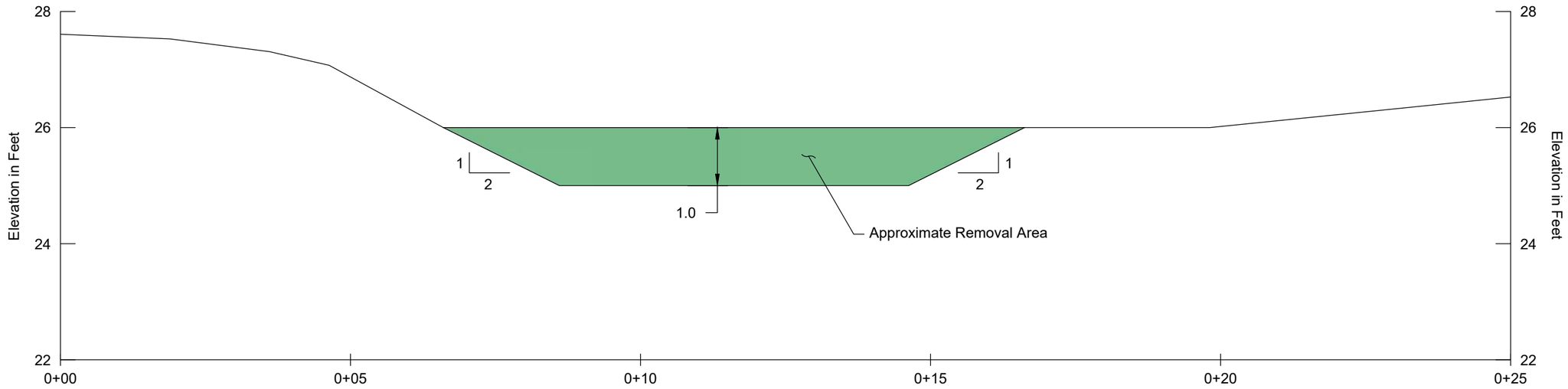
11/21/2024

Figure 14
Extent of Off-Property Contaminated Soil Removal

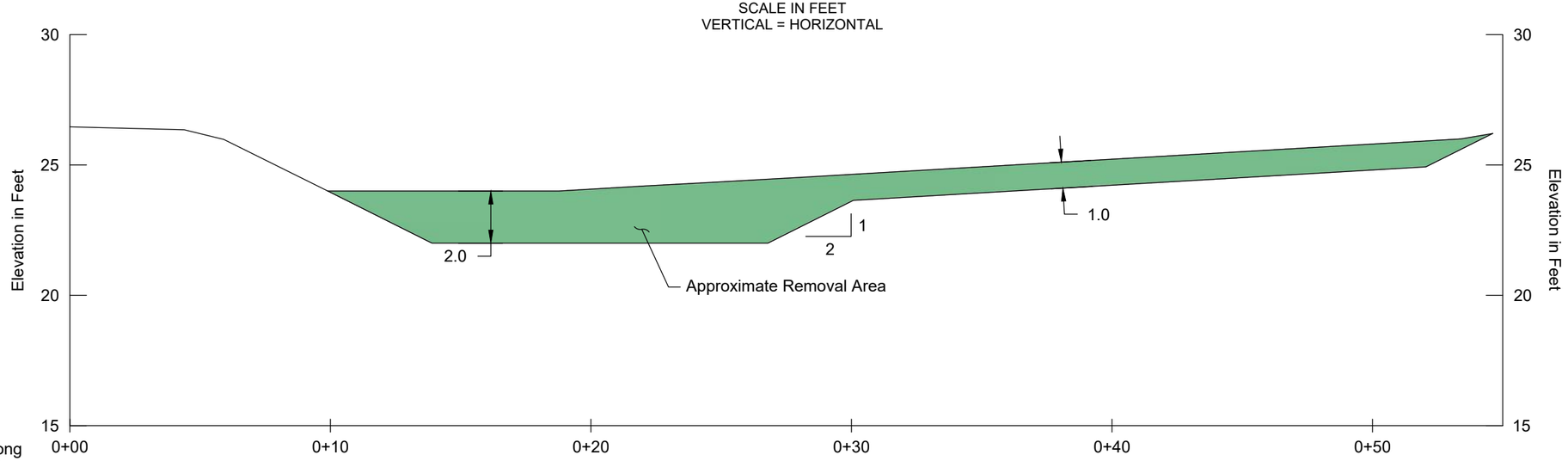
File: Maralco Site_IAWP 2024.dwg Layout: 14-Off-prop



A / 13 Typical Section - Area 1 On-Property Ditch Area

0 2 4

SCALE IN FEET
VERTICAL = HORIZONTAL



B / 13 Typical Section - Area 3

0 5 10

SCALE IN FEET
VERTICAL = HORIZONTAL

NOTES

1. Ditch channel width varies.
2. Ditch runs adjacent to slope along northern side. Removal along the northern slope will occur only if sediment is present.
3. Bench slopes to minimized disturbance to northern slope.

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Maralco Site
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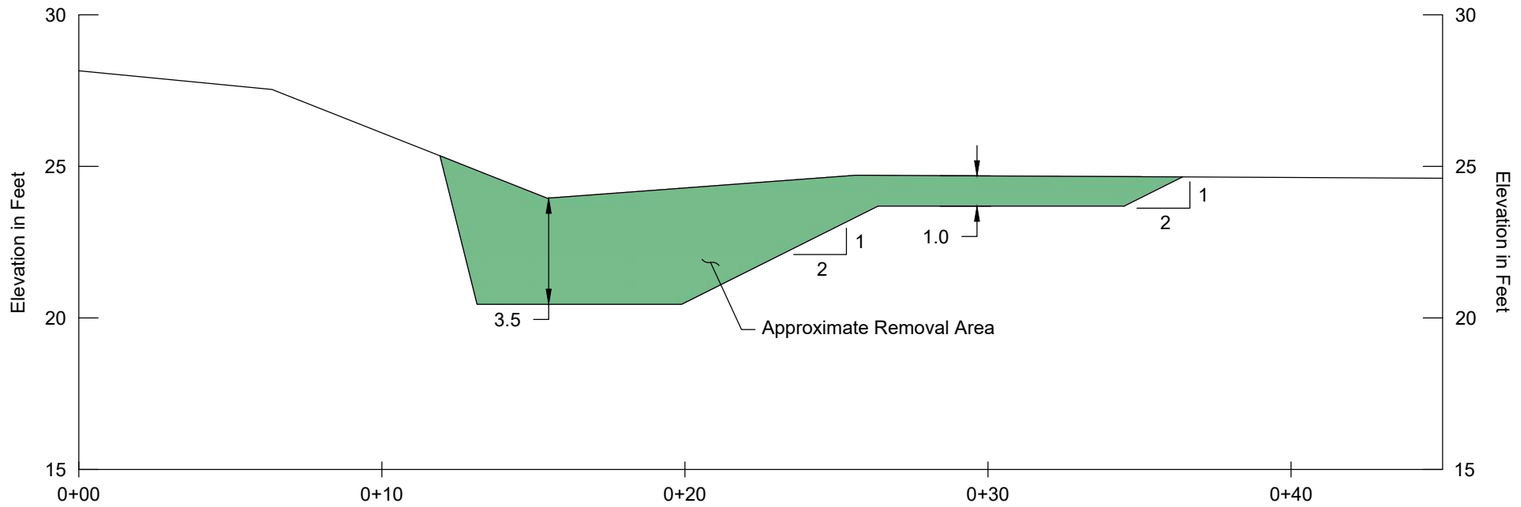
Kent, Washington
11/21/2024

Figure 15
Typical On-Property
Ditch Excavation Section

File: Maralco Site_IAWP 2024.dwg Layout: Sections



C
14

Typical Section - Area 5 Off-Property Ditch

0 5 10

SCALE IN FEET
VERTICAL = HORIZONTAL

NOTES

1. Ditch runs adjacent to slope along northern side. Removal along the northern slope will occur only if sediment is present.

2. Bench slopes to minimized disturbance to northern slope.

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Maralco Site
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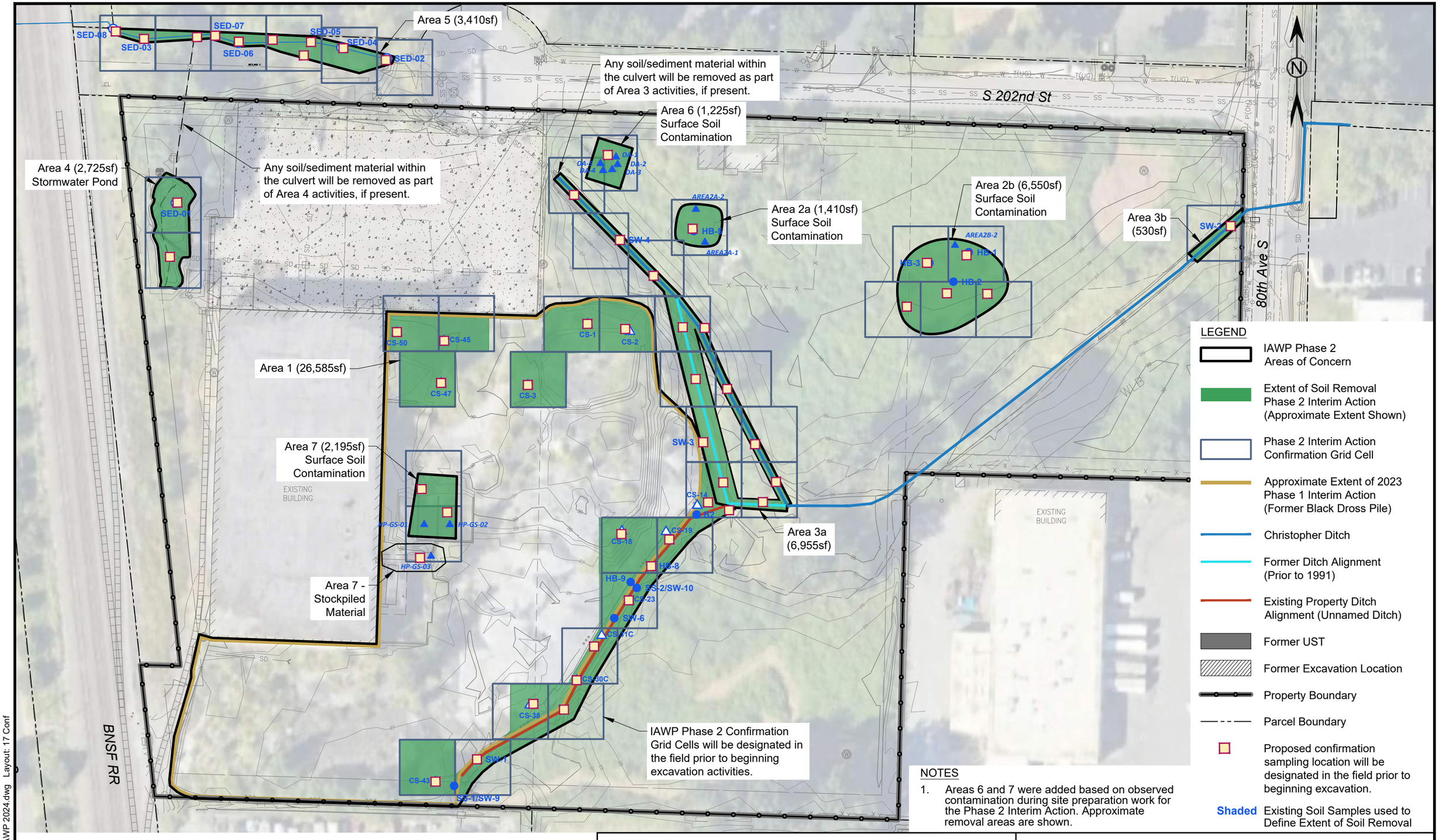
Kent, Washington
11/21/2024

Figure 16
Typical Off-Property
Ditch Excavation Section

File: Maralco Site_IAWP 2024.dwg Layout: Sections (2)



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Maralco Site
7730 South 202nd Street
Kent, Washington
11/21/2024

Figure 17
Confirmation Soil Sample Locations

File: Maralco Site_IAWP 2024.dwg Layout: 17 Conf

Appendix A
COI Backup

Appendix A - Table A-1 Constituents of Interest (COIs) - Summary of Results
Maralco Property - Kent, WA

Constituent	COI?
Metals	
Aluminum	yes
Antimony	yes
Arsenic	yes
Cadmium	yes
Chromium	yes
Cobalt	yes
Copper	yes
Iron	yes
Lead	yes
Manganese	yes
Mercury	yes
Nickel	yes
Selenium	yes
Silver	yes
Zinc	yes
Non Metal Compounds	
Benzene	yes
Toluene	yes
Xylenes, Total	yes
Total Carcinogenic Polycyclic Aromatic Hydrocarbons	yes
bis(2-Ethylhexyl)phthalate	yes
Di-n-octyl Phthalate	yes
Fluoranthene	yes
Fluorene	yes
Naphthalene	yes
2-Methylnaphthalene	yes
4-Methylphenol	yes
Pyrene	yes

Table A-2 Summary of Screening Levels - PCUL Workbook - Soil Summary for Freshwater Sites

Sort Order	Chemical (all concentrations in mg/kg)	Most Stringent Soil PCUL Vadose Zone Potable GW SL #s 1-4 & 10	Basis	Most Stringent Soil PCUL Saturated Zone Potable GW SL #s 1, 5-7 & 10	Basis	SL-1 Direct Contact SL-Det	SL-2 Protect Drinking Water Vadose Zone LeachFW	SL-3 Protect Surface Water via Ground Water Vadose Zone LeachFW	SL-4 Protect Sediment via Ground Water Vadose Zone LeachFW	SL-5 Protect Drinking Water Saturated Zone LeachFW	SL-6 Protect Surface Water via Ground Water Saturated Zone LeachFW	SL-7 Protect Sediment via Ground Water Saturated Zone LeachFW	SL-10 Natural Background Ecology (1994)
10	***Inorganics***												
12	Nitrate	130000	DC	130000	DC	1.3E+05	na	na	na	na	na	na	na
16	***Metals***												
17	Aluminum	33000	NB	33000	NB	8.0E+04	4.8E+05	2.6E+03	1.3E+07	2.4E+04	1.3E+02	6.7E+05	3.3E+04
18	Antimony	5.2	NB	5.2	NB	3.2E+01	5.4E+00	5.1E+00	5.3E+03	2.7E-01	2.5E-01	2.7E+02	5.2E+00
19	Arsenic	7.3	NB	7.3	NB	6.7E-01	4.7E+00	4.7E+00	2.2E+02	2.3E-01	2.3E-01	1.1E+01	7.3E+00
20	Barium	820	SW	250	NB	1.6E+04	1.6E+03	8.2E+02	2.7E+06	8.3E+01	4.1E+01	1.3E+05	2.5E+02
21	Beryllium	63	DW	3.2	DW	1.6E+02	6.3E+01	1.2E+03	2.7E+04	3.2E+00	6.0E+01	1.3E+03	6.1E-01
22	Cadmium	0.77	NB	0.77	NB	8.0E+01	6.9E-01	9.9E-02	1.6E+01	3.5E-02	5.0E-03	8.0E-01	7.7E-01
23	Chromium, total	na	NB	na	NB	na	na	na	na	na	na	na	4.8E+01
24	Chromium, trivalent	1500	SW	74	SW	1.2E+05	4.8E+05	1.5E+03	2.0E+07	2.4E+04	7.4E+01	1.0E+06	na
25	Chromium, hexavalent	0.018	DW	0.00089	DW	3.8E-01	1.8E-02	1.4E-01	TBD	8.9E-04	6.9E-03	TBD	na
26	Cobalt	11	NB	11	NB	2.4E+01	4.3E+00	na	4.0E+03	2.2E-01	na	2.0E+02	1.1E+01
27	Copper	36	NB	36	NB	3.2E+03	2.8E+02	5.0E+00	8.0E+03	1.4E+01	2.5E-01	4.0E+02	3.6E+01
28	Iron	36000	NB	36000	NB	5.6E+04	1.5E+02	5.0E+02	9.3E+06	7.6E+00	2.5E+01	4.7E+05	3.6E+04
29	Lead	250	DC	24	NB	2.5E+02	3.0E+03	5.0E+02	4.2E+02	1.5E+02	2.5E+01	2.1E+01	2.4E+01
30	Manganese	1100	NB	1100	NB	3.7E+03	6.5E+01	6.5E+01	6.1E+05	3.3E+00	3.3E+00	3.1E+04	1.1E+03
31	Mercury, inorganic	0.07	NB	0.07	NB	na	2.1E+00	1.3E-02	4.0E+00	1.0E-01	6.3E-04	2.0E-01	7.0E-02
34	Nickel	68	SW	48	NB	1.6E+03	4.2E+02	6.8E+01	1.0E+03	2.1E+01	3.4E+00	5.0E+01	4.8E+01
35	Selenium	0.78	NB	0.78	NB	4.0E+02	5.2E+00	5.2E-01	2.0E+00	2.6E-01	2.6E-02	1.0E-01	7.8E-01
36	Silver	0.61	NB	0.61	NB	4.0E+02	1.4E+01	5.5E-01	1.1E+01	6.9E-01	2.8E-02	5.7E-01	6.1E-01
40	Zinc	130	SW	85	NB	2.4E+04	6.0E+03	1.3E+02	6.4E+04	3.0E+02	6.5E+00	3.2E+03	8.5E+01
46	***SVOCs - PAHs***												
54	Benzo(g,h,i)perylene	na	DC	na	DC	na	na	na	na	na	na	na	na
59	Fluoranthene	0.02	Sed	0.001	Sed	3.2E+03	6.3E+02	5.9E+00	2.0E-02	3.2E+01	3.0E-01	1.0E-03	na
60	Fluorene	1.6	GW	0.080	GW	3.2E+03	5.1E+01	1.6E+00	1.5E+04	2.6E+00	8.0E-02	7.4E+02	na
64	2-Methylnaphthalene	1.7	DW	0.089	DW	3.2E+02	1.7E+00	na	1.5E+03	8.9E-02	na	7.8E+01	na
65	Naphthalene	4.5	DW	0.24	DW	1.6E+03	4.5E+00	3.8E+01	8.0E+03	2.4E-01	2.0E+00	4.2E+02	na
66	Phenanthrene	na	DC	na	DC	na	na	na	na	na	na	na	na
67	Pyrene	0.02	Sed	0.001	Sed	2.4E+03	3.3E+02	1.1E+01	2.0E-02	1.6E+01	5.5E-01	1.0E-03	na
71	Total cPAH TEQ	0.084	Sed	0.0042	Sed	1.9E-01	3.9E+00	1.9E-01	8.4E-02	1.9E-01	9.4E-03	4.2E-03	na
72	***Other SVOCs***												
83	Bis(2-ethylhexyl) phthalate	0.10	SW	0.005	SW	7.1E+01	1.3E+01	1.0E-01	2.0E+00	6.7E-01	5.0E-03	1.0E-01	na
93	Dibutyl phthalate	0.28	GW	0.015	GW	8.0E+03	5.7E+01	2.8E-01	1.7E+00	3.0E+00	1.5E-02	8.7E-02	na
111	Di-n-octyl phthalate	0.55	Sed	0.027	Sed	8.0E+02	4.5E+02	na	5.5E-01	2.3E+01	na	2.7E-02	na
122	4-Methylphenol (p-cresol)	1.5	Sed	0.085	Sed	8.0E+03	1.6E+01	na	1.5E+00	9.4E-01	na	8.5E-02	na
133	Phenol	0.76	Sed	0.047	Sed	2.4E+04	3.7E+01	3.1E+01	7.6E-01	2.3E+00	1.9E+00	4.7E-02	na
140	***Volatile Organic Compounds***												
146	Benzene	0.0024	SW	0.00015	DW	1.8E+01	2.7E-02	2.4E-03	3.8E+02	1.7E-03	1.5E-04	2.4E+01	na
186	Ethylbenzene	0.10	GW	0.0059	GW	8.0E+03	5.9E+00	1.0E-01	4.3E+05	3.4E-01	5.9E-03	2.5E+04	na
208	Toluene	0.37	SW	0.023	GW	6.4E+03	4.5E+00	3.7E-01	3.8E+05	2.7E-01	2.3E-02	2.3E+04	na
222	Total xylenes	0.51	SW	0.030	GW	1.6E+04	1.4E+01	5.1E-01	8.2E+05	8.3E-01	3.0E-02	4.8E+04	na
232	***Petroleum Hydrocarbons***												
234	Gasoline range hydrocarbons, weathered	30	Method A	30	Method A	1.5E+03	na	na	na	na	na	na	na
236	Diesel range hydrocarbons, weathered	2000	Method A	2000	Method A	na	na	na	na	na	na	na	na
237	Oil range hydrocarbons	2000	Method A	2000	Method A	na	na	na	na	na	na	na	na
238	Total diesel & oil range hydrocarbons	2000	Method A	2000	Method A	na	na	na	na	na	na	na	na

Notes added by CRETE 6/21/2024

1. Using Method A of 30 mg/kg for GRO

2. Using Method A of 2,000 mg/kg for DRO, ORO, and total

Appendix A - Table A-3 COIs - Soil Data Summary (Metals)
Maralco Property - Kent, WA

Analyte			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Thallium	Zinc	Mercury	Silver	Selenium	Iron	Cobalt
Ecology PCUL June 6 2024 - vadose (mg/kg)			33,000	5.2	7.3	820	63	0.77	1500	36	250	1100	68	0.09	130	0.07	0.61	0.78	36,000	11
Ecology PCUL June 6 2024 - sat (mg/kg)			33,000	5.2	7.3	250	3.2	0.77	74	36	24	1100	48	0.004	85	0.07	0.61	0.78	36,000	11
Min Ecology PCUL value (mg/kg)			33,000	5.2	7.3	250	3.2	0.77	74	36	24	1,100	48	0.004	85	0.07	0.61	0.78	36,000	11
Min Detected Value (mg/kg)			1,400	0.10	1	12.3	ND	0.0759	1.2	6.73	1.08	62.2	4.3	ND	2	0.0163	0.5	0.34	841	2.32
Max Detected Value (mg/kg)			188,000	24.6	53.4	124	ND	7.51	232	6,050	184	1,520	87.5	ND	3,280	0.158	3.14	1.41	75,800	16.7
Lowest Dection Limit (for samples with all ND values)			--	--	--	--	2	--	--	--	--	--	--	0.20	--	--	--	--	--	--
Is Value above Ecology PCUL SL (lowest SL)			yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes
Sample ID	**Depth (feet below ground surface)**	**Date**	**Results (mg/kg)**																	
S1	Surface Composite	6/1/87	NA	0.5 U	**2.8**	NA	2 U	1 U	**19.0**	**19.0**	10 U	NA	**23.0**	0.4 U	**55.0**	0.99 U	2 U	0.2 U	NA	NA
S2	Surface Composite	6/1/87	NA	0.5 U	**4.3**	NA	2 U	1 U	**21.0**	**29.0**	**26.0**	NA	**25.0**	0.4 U	**57.0**	0.1 U	2 U	**0.34**	NA	NA
S3	Surface Composite	6/1/87	NA	0.5 U	**12.0**	NA	2 U	1 U	**10.0**	**21.0**	**44.0**	NA	**14.0**	0.4 U	**56.0**	0.1 U	2 U	0.2 U	NA	NA
S4	Surface Composite	6/1/87	NA	0.5 U	**11.0**	NA	2 U	1 U	**13.0**	**21.0**	**27.0**	NA	**13.0**	0.5 U	**60.0**	0.1 U	2 U	0.2 U	NA	NA
S5	Surface Composite	6/1/87	NA	0.5 U	**9.2**	NA	2 U	1 U	**11.0**	**18.0**	**27.0**	NA	**14.0**	0.4 U	**66.0**	0.1 U	2 U	0.2 U	NA	NA
HB-1	1.5-2	5/9/90	**12,800**	**0.2**	**1**	**33**	NA	0.2 U	**12.4**	**24.1**	**1.7**	**141**	**9**	0.2 U	**27.9**	0.04 U	0.3 U	0.5 U	NA	NA
HB-2	1.5-2	5/9/90	**19,700**	**0.2**	**1.9**	**50.6**	NA	0.2 U	**26.3**	**91.8**	**6.2**	**209**	**12**	0.2 U	**67.8**	0.05 U	0.2 U	0.6 U	NA	NA
HB-3	1.5-2	5/9/90	**13,000**	**0.1**	**1.6**	**39.1**	NA	0.2 U	**12.4**	**35.2**	**2.3**	**151**	**9**	0.2 U	**34.3**	0.04 U	0.3 U	0.6 U	NA	NA
HB-4	2-3	9/11/90	**5,280**	NA	NA	**26.7**	NA	NA	**90.8**	**14.6**	2 U	**91**	NA	NA	**17.4**	NA	NA	NA	NA	NA
HB-5	1-2	9/11/90	**5,380**	NA	NA	**28.5**	NA	NA	**68.2**	**14.7**	**2.7**	**114**	NA	NA	**23.9**	NA	NA	NA	NA	NA
HB-6	0-1	9/11/90	**8,250**	NA	NA	**42.3**	NA	NA	**41.5**	**18**	**9.9**	**175**	NA	NA	**29.5**	NA	NA	NA	NA	NA
HB-6	2-3	9/11/90	**7,530**	NA	NA	**41.9**	NA	NA	**17.5**	**19.4**	**2**	**157**	NA	NA	**20.6**	NA	NA	NA	NA	NA
HB-8	2.5-3	9/11/90	**9,770**	NA	NA	**79.9**	NA	NA	**15**	**153**	**6.8**	**101**	NA	NA	**78.7**	NA	NA	NA	NA	NA
HB-9	3-4	9/11/90	**15,200**	NA	NA	**15.3**	NA	NA	**18.4**	**38.7**	**5.7**	**238**	NA	NA	**36.5**	NA	NA	NA	NA	NA
HB-11	1.5-2.5	9/10/90	**10,900**	NA	NA	**21**	NA	NA	**40.2**	**59**	**7.6**	**111**	NA	NA	**32.4**	NA	NA	NA	NA	NA
HB-11	2.5-4	9/10/90	**4,930**	NA	NA	**12.3**	NA	NA	**107**	**25.6**	2 U	**62.2**	NA	NA	**18**	NA	NA	NA	NA	NA
HB-14	0-1	9/12/90	**9,130**	NA	NA	**54.8**	NA	NA	**26.6**	**20.3**	**16**	**223**	NA	NA	**45.1**	NA	NA	NA	NA	NA
HB-14	2-3.3	9/12/90	**5,080**	NA	NA	**26.9**	NA	NA	**54.2**	**22.6**	**2.5**	**90.6**	NA	NA	**16.9**	NA	NA	NA	NA	NA
HB-14 (Duplicate)	2-3	9/12/90	**5,710**	NA	NA	**30.2**	NA	NA	**11.8**	**11.4**	**3.4**	**107**	NA	NA	**18.8**	NA	NA	NA	NA	NA
HB-15	0-0.5	9/11/90	**8,240**	NA	NA	**43.2**	NA	NA	**20.1**	**26.5**	**8.1**	**183**	NA	NA	**32.7**	NA	NA	NA	NA	NA
HB-15	2-3	9/11/90	**7,290**	NA	NA	**38**	NA	NA	**35.6**	**21.6**	**5.1**	**134**	NA	NA	**36.3**	NA	NA	NA	NA	NA
HB-16	0-1	9/12/90	**9,810**	NA	NA	**56.1**	NA	NA	**28.2**	**21**	**15.3**	**269**	NA	NA	**39.2**	NA	NA	NA	NA	NA
HB-16	2-3	9/12/90	**5,880**	NA	NA	**27**	NA	NA	**80.6**	**14.7**	2 U	**113**	NA	NA	**19.1**	NA	NA	NA	NA	NA
MW-1	3.0-4.0	9/25/90	**13,700**	NA	NA	**55.8**	NA	NA	**15.4**	**21.3**	**2.97**	**157**	NA	NA	**27.3**	NA	NA	NA	NA	NA
MW-1	6.0-7.5	9/25/90	**14,000**	NA	NA	**56.6**	NA	NA	**20.9**	**22.6**	**2.8**	**180**	NA	NA	**30**	NA	NA	NA	NA	NA
MW-1	12.0-13.5	9/25/90	**14,700**	NA	NA	**64.4**	NA	NA	**17.8**	**28.5**	**3.04**	**128**	NA	NA	**31.5**	NA	NA	NA	NA	NA
MW-1	15.0-16.5	9/25/90	**9,390**	NA	NA	**36.4**	NA	NA	**14**	**17.7**	**1.85**	**95.2**	NA	NA	**25.1**	NA	NA	NA	NA	NA
MW-2	2.0-3.0	9/25/90	**10,800**	NA	NA	**43.2**	NA	NA	**21.5**	**16.6**	**2.03**	**161**	NA	NA	**2**	NA	NA	NA	NA	NA
MW-2	6.4-7.5	9/25/90	**10,300**	NA	NA	**40**	NA	NA	**16.8**	**14.5**	**1.83**	**105**	NA	NA	**23.2**	NA	NA	NA	NA	NA
MW-2	10.-12.0	9/25/90	**8,590**	NA	NA	**37.3**	NA	NA	**17.9**	**15.3**	**1.94**	**135**	NA	NA	**23.7**	NA	NA	NA	NA	NA
MW-2	15.5-16.5	9/25/90	**22,900**	NA	NA	**88.2**	NA	NA	**24.3**	**54.1**	**4.26**	**396**	NA	NA	**38.5**	NA	NA	NA	NA	NA
MW-3	3.0-4.5	9/24/90	**13,500**	NA	NA	**45.7**	NA	NA	**38.4**	**18.3**	**2.03**	**148**	NA	NA	**22.9**	NA	NA	NA	NA	NA
MW-3 (Duplicate)	3.0-4.5	9/24/90	**13,400**	NA	NA	**51.9**	NA	NA	**27.7**	**21.4**	**2.29**	**172**	NA	NA	**25.4**	NA	NA	NA	NA	NA
MW-3	6.5-7.5	9/24/90	**31,800**	NA	NA	**124**	NA	NA	**29.4**	**38.6**	**5.88**	**222**	NA	NA	**53.8**	NA	NA	NA	NA	NA
MW-3	12.5-13.5	9/24/90	**17,100**	NA	NA	**65.3**	NA	NA	**30**	**20.3**	**2.47**	**177**	NA	NA	**31.4**	NA	NA	NA	NA	NA
MW-3	15.0-16.5	9/24/90	**15,300**	NA	NA	**70.2**	NA	NA	**24.3**	**25**	**3.09**	**204**	NA	NA	**34.3**	NA	NA	NA	NA	NA
MW-4	1.5-3.0	9/24/90	**17,100**	NA	NA	**40.7**	NA	NA	**26.6**	**22.6**	**2.67**	**122**	NA	NA	**29.3**	NA	NA	NA	NA	NA
MW-4	4.5-6.0	9/24/90	**18,200**	NA	NA	**62.7**	NA	NA	**27.9**	**20.6**	**2.48**	**131**	NA	NA	**32.6**	NA	NA	NA	NA	NA
MW-4	9.0-10.5	9/24/90	**21,800**	NA	NA	**86.1**	NA	NA	**34.3**	**34.5**	**3.92**	**250**	NA	NA	**40.7**	NA	NA	NA	NA	NA
MW-4	12.0-13.5	9/24/90	**9,770**	NA	NA	**25.8**	NA	NA	**55.5**	**10.7**	**1.23**	**106**	NA	NA	**22.4**	NA	NA	NA	NA	NA
MW-5	5 ft bgs	1/22/03	NA	NA	NA	NA	NA	NA	NA	NA	**18**	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	10 ft bgs	1/22/03	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	15 ft bgs	1/22/03	NA	NA	NA	NA	NA	NA	NA	NA	**13.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA
DP-2	3 ft bgs	2/4/03	**1,400**	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA
DP-3	3 ft bgs	2/4/03	**2,000**	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA
DP-4	3 ft bgs	2/4/03	**2,300**	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA
DP-5	1 ft bgs	2/4/03	NA	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA
DP-5	2.5 ft bgs	2/4/03	**1,400**	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA
MW-3A (5')	see sample ID	7/21/17	**7,800**	NA	**1.1**	5 U	NA	1 U	**1.2**	NA	1 U	NA	NA	NA	NA	0.5 U	NA	2 U	NA	NA
MW-4A (6.5')	see sample ID	7/21/17	**5,600**	NA	1 U	5 U	NA	1 U	1 U	NA	1 U	NA	NA	NA	NA	0.5 U	NA	2 U	NA	NA
MW-6 (6.5')	see sample ID	7/21/17	**9,700**	NA	**1.6**	5 U	NA	1 U	**4**	NA	**1.6**	NA	NA	NA	NA	0.5 U	NA	2 U	NA	NA
DPT-6 1.5-2'	see sample ID	5/24/21	**14,500**	2 U	**10.9**	NA	NA	1 U	**10.6**	**43.6**	**14.5**	NA	**8.46**	NA	**353**	NA	NA	NA	**12,400**	NA
DPT-6 2.6-3.1'	see sample ID	5/24/21	**10,800**	2 U	**2.91**	NA	NA	1 U	**8.31**	**33.3**	**3.69**	NA	**6.25**	NA	**47**	NA	NA	NA	**11,200**	NA
DPT-8 8.2-8.4'	see sample ID	5/24/21	**17,400**	2 U	**11.3**	NA	NA	1 U	**17**	**56.5**	**8.28**	NA	**14**	NA	**56**	NA	NA	NA	**15,300**	NA
DPT-9 14.5-15'	see sample ID	5/24/21	**15,400**	2 U	**7.51**	NA	NA	1 U	**13.8**	**19.4**	**3.43**	NA	**9.51**	NA	**26.6**	NA	NA	NA	**21,700**	NA
DPT-11 2.1-3.1′	see sample ID	5/24/21	**17,100**	2 U	5 U	NA	NA	1 U	**25.7**	**58.1**	**5.17**	NA	**27.4**	NA	**60.7**	NA	NA	NA	**18,600**	NA
DPT-11 4.5-5′	see sample ID	5/24/21	**15,400**	2 U	**2.1**	NA	NA	1 U	**19.4**	25	**2.78**	NA	**22.5**	NA	**32**	NA	NA	NA	**16,500**	NA
DPT-12 8.6-9.2′	see sample ID	5/24/21	**16,500**	2 U	5 U	NA	NA	1 U	**18.4**	**26.7**	**5.72**	NA	**21.8**	NA	**50.8**	NA	NA	NA	**18,200**	NA
DPT-13 7.2-8.2′	see sample ID	5/24/21	**14,700**	2 U	5 U	NA	NA	1 U	**19.8**	**29.3**	**2.77**	NA	**20.6**	NA	**35**	NA	NA	NA	**16,400**	NA
DPT-13 9.3-10′	see sample ID	5/24/21	**11,800**	2 U	**3.15**	NA	NA	1 U	**9.81**	**12.2**	**10.1**	NA	**7.71**	NA	**29.9**	NA	NA	NA	**9,420**	NA
DPT-14 5-7.5'	see sample ID	8/29/22	**4,340**	1 U	**2.63**	NA	NA	1 U	**6.57**	**7.43**	**1.99**	NA	**5.05**	NA	**16.9**	NA	1 U	NA	**7,910**	NA
DPT-14 10-11.5'	see sample ID	8/29/22	**6,980**	1 U	1 U	NA	NA	1 U	**5.99**	**7.27**	**1.10**	NA	**4.36**	NA	**15.6**	NA	1 U	NA	**11,500**	NA
DPT-15 5-6.5'	see sample ID	8/29/22	**4,720**	1 U	**2.05**	NA	NA	1 U	**9.15**	**10.1**	**1.17**	NA	**5.25**	NA	**16.5**	NA	1 U	NA	**8,700**	NA
DPT-15 8.5-10'	see sample ID	8/29/22	**2,640**	1 U	**5.09**	NA	NA	1 U	**6.52**	**15.2**	**2.14**	NA	**8.96**	NA	**22.6**	NA	1 U	NA	**2,960**	NA
DPT-16 6.5-8'	see sample ID	8/30/22	**3,380**	1 U	**1.17**	NA	NA	1 U	**8.37**	**7.00**	**1.10**	NA	**4.91**	NA	**15.1**	NA	1 U	NA	**841**	NA
DPT-16 10-11.5'	see sample ID	8/30/22	**5,260**	1 U	**1.51**	NA	NA	1 U	**5.49**	**7.92**	**1.37**	NA	**5.12**	NA	**14.2**	NA	1 U	NA	**9,480**	NA
DPT-18 5-7.2'	see sample ID	8/30/22	**5,010**	1 U	**2.48**	NA	NA	1 U	**10.0**	**13.0**	**4.04**	NA	**9.26**	NA	**23.7**	NA	1 U	NA	**6,490**	NA
DPT-18 14-15'	see sample ID	8/31/22	**5,130**	1 U	**1.26**	NA	NA	1 U	**7.89**	**10.8**	**1.63**	NA	**5.85**	NA	**18.5**	NA	1 U	NA	**6,520**	NA
DPT-19 6-8'	see sample ID	8/31/22	**16,900**	1 U	**3.32**	NA	NA	1 U	**11.8**	**24.2**	**3.73**	NA	**11.1**	NA	**38.1**	NA	1 U	NA	**16,900**	NA
DPT-19 12.5-15'	see sample ID	8/31/22	**7,410**	1 U	**2.09**	NA	NA	1 U	**10.0**	**16.6**	**2.84**	NA	**8.24**	NA	**23.3**	NA	1 U	NA	**8,030**	NA
DPT-20 6.5-7.5'	see sample ID	8/31/22	**13,200**	1 U	**4.13**	NA	NA	1 U	**12.3**	**23.5**	**4.22**	NA	**11.2**	NA	**33.8**	NA	1 U	NA	**16,600**	NA
DPT-20 13.5-15'	see sample ID	8/31/22	**7,930**	1 U	**2.33**	NA	NA	1 U	**11.8**	**19.5**	**2.55**	NA	**12.8**	NA	**24.5**	NA	1 U	NA	**10,500**	NA
DPT-21 6-10'	see sample ID	8/31/22	**4,990**	1 U	**1.84**	NA	NA	1 U	**10.2**	**11.0**	**2.79**	NA	**6.01**	NA	**54.1**	NA	1 U	NA	**8,150**	NA
DPT-21 11.5-14' DUP01-220831	see sample ID	8/31/22	**5,390**	1 U/1 U	1.14 U	NA	NA	1 U/1 U	**8.51**	**11.7**	**1.56**	NA	**6.63**	NA	**20**	NA	1 U/1 U	NA	**8,220**	NA
DPT-22 3.5-5'	see sample ID	8/31/22	**10,400**	1 U	**6.91**	NA	NA	1 U	**12.9**	**22.3**	**21.7**	NA	**12.3**	NA	**37.0**	NA	1 U	NA	**15,000**	NA
DPT-22 5-7'	see sample ID	8/31/22	**9,160**	1 U	**1.64**	NA	NA	1 U	**10.3**	**20.0**	**2.54**	NA	**7.87**	NA	**23.6**	NA	1 U	NA	**8,310**	NA
DPT-22 11-13.2'	see sample ID	8/31/22	**4,390**	1 U	**3.23**	NA	NA	1 U	**8.39**	**8.74**	**1.19**	NA	**7.24**	NA	**17.3**	NA	1 U	NA	**9,290**	NA
SB-UST-01 5-6'	see sample ID	8/29/22	**6,720**	1 U	**2.05**	NA	NA	1 U	**9.82**	**12.0**	**1.80**	NA	**6.18**	NA	**17.2**	NA	1 U	NA	**8,660**	NA
SB-UST-02 5-6'	see sample ID	8/29/22	**7,250**	1 U	**2.18**	NA	NA	1 U	**10.7**	**13.6**	**2.16**	NA	**7.98**	NA	**20.8**	NA	1 U	NA	**9,870**	NA
SB-UST-02 15-16'	see sample ID	8/29/22	**6,690**	1 U	**2.83**	NA	NA	1 U	**9.27**	**19.7**	**2.66**	NA	**8.48**	NA	**25.7**	NA	1 U	NA	**8,940**	NA
SB-UST-03 1-2'	see sample ID	8/29/22	**5,370**	1 U	**7.81**	NA	NA	1 U	**8.57**	**16.7**	**13.5**	NA	**10.1**	NA	**28.2**	NA	1 U	NA	**7,800**	NA
MW-5R 5.5-7'	see sample ID	8/30/22	**5,000**	1 U	**1.52**	NA	NA	1 U	**6.98**	**7.60**	**1.09**	NA	**4.49**	NA	**14.2**	NA	1 U	NA	**13,700**	NA
MW-5R 11-12'	see sample ID	8/30/22	**7,760**	1 U	**1.93**	NA	NA	1 U	**8.50**	**14.1**	**1.96**	NA	**6.41**	NA	**20.4**	NA	1 U	NA	**7,260**	NA
MW-7 5-7'	see sample ID	8/30/22	**6,920**	1 U	**12.2**	NA	NA	1 U	**9.13**	**15.9**	**14.7**	NA	**8.80**	NA	**34.5**	NA	1 U	NA	**22,200**	NA
MW-7 13.5-15'	see sample ID	8/30/22	**8,820**	1 U	**5.27**	NA	NA	1 U	**8.01**	**23.2**	**2.62**	NA	**9.61**	NA	**31.6**	NA	1 U	NA	**27,400**	NA
MW-8 4-5'	see sample ID	8/30/22	**5,340**	1 U	**10.7**	NA	NA	1 U	**6.95**	**19.0**	**21.5**	NA	**5.77**	NA	**45.2**	NA	1 U	NA	**7,000**	NA
MW-8 12-13'	see sample ID	8/30/22	**8,160**	1 U	**2.99**	NA	NA	1 U	**8.61**	**16.5**	**2.07**	NA	**8.46**	NA	**22.8**	NA	1 U	NA	**9,090**	NA
DPT-6 1.5-2'	0.5	5/24/21	**14,500**	2 U	**10.9**	NA	NA	1 U	**10.6**	**43.6**	**14.5**	**140**	**8.46**	NA	**353**	NA	NA	NA	**12,400**	5 U
DPT-6 2.6-3.1'	1.6	5/24/21	**10,800**	2 U	**2.91**	NA	NA	1 U	**8.31**	**33.3**	**3.69**	**92.7**	**6.25**	NA	**47**	NA	NA	NA	**11,200**	**3.35**
DPT-8 8.2-8.4'	0.5	5/24/21	**17,400**	2 U	**11.3**	NA	NA	1 U	**17**	**56.5**	**8.28**	**194**	**14**	NA	**56**	NA	NA	NA	**15,300**	**6.65**
DPT-9 14.5-15'	1.8	5/24/21	**15,400**	2 U	**7.51**	NA	NA	1 U	**13.8**	**19.4**	**3.43**	**135**	**9.51**	NA	**26.6**	NA	NA	NA	**21,700**	**4.97**
DPT-11 2.1-3.1′	0.5	5/24/21	**17,100**	2 U	5 U	NA	NA	1 U	**25.7**	**58.1**	**5.17**	**242**	**27.4**	NA	**60.7**	NA	NA	NA	**18,600**	**6.3**
DPT-11 4.5-5′	2.9	5/24/21	**15,400**	2 U	**2.1**	NA	NA	1 U	**19.4**	25 U	**2.78**	**230**	**22.5**	NA	**32**	NA	NA	NA	**16,500**	**6.59**
DPT-12 8.6-9.2′	0.5	5/24/21	**16,500**	2 U	5 U	NA	NA	1 U	**18.4**	**26.7**	**5.72**	**229**	**21.8**	NA	**50.8**	NA	NA	NA	**18,200**	**6.21**
DPT-13 7.2-8.2′	0.5	5/24/21	**14,700**	2 U	5 U	NA	NA	1 U	**19.8**	**29.3**	**2.77**	**253**	**20.6**	NA	**35**	NA	NA	NA	**16,400**	**6.1**
DPT-13 9.3-10′	2.6	5/24/21	**11,800**	2 U	**3.15**	NA	NA	1 U	**9.81**	**12.2**	**10.1**	**85**	**7.71**	NA	**29.9**	NA	NA	NA	**9,420**	**4.59**
B-4-7	7	10/27/16	**9,370**	NA	**2.34**	**39.6**	NA	**0.115**	**13**	NA	**2.37**	NA	NA	NA	NA	**0.023**	1.17 U	2.34 U	NA	NA
B-4-15	15	10/27/16	**12,200**	NA	**2.73**	**55.7**	NA	**0.128**	**14.5**	NA	**3.26**	NA	NA	NA	NA	**0.0288**	1.37 U	**1.41**	NA	NA
B-5-8	8	10/27/16	**5,730**	NA	**3.46**	**19.1**	NA	**0.0759**	**8.32**	NA	**2.14**	NA	NA	NA	NA	0.0211 U	1.05 U	2.11 U	NA	NA
B-5-15	15	10/27/16	**8,840**	NA	2.77 U	**42.1**	NA	0.692 U	**11.4**	NA	**2.57**	NA	NA	NA	NA	**0.0281**	1.38 U	2.77 U	NA	NA
B-6-7.5	7.5	10/27/16	**16,600**	NA	**2.47**	**70.2**	NA	**0.153**	**18**	NA	**4.35**	NA	NA	NA	NA	**0.141**	1.31 U	2.62 U	NA	NA
B-6-15	15	10/27/16	**19,800**	NA	**2.88**	**52.2**	NA	**0.234**	**20.1**	NA	**6**	NA	NA	NA	NA	**0.0163**	1.45 U	**1.11**	NA	NA
CS-01	Grid Cell CS-01	10/17/23	**27,100**	**1.78**	**3.37**	NA	NA	1 U	**27.2**	**127**	**17.3**	NA	**20.8**	NA	**104**	0.7 U	1 U	NA	**15,900**	**4.97**
CS-02	Grid Cell CS-02	10/17/23	**38,000**	**3.14**	**2.44**	NA	NA	**1.16**	**47.2**	**244**	**20.9**	NA	**25.3**	NA	**151**	0.7 U	1 U	NA	**12,800**	**5.69**
CS-03	Grid Cell CS-03	10/17/23	**19,700**	**1.52**	**4.28**	NA	NA	1 U	**22.2**	**107**	**6.96**	NA	**16.6**	NA	**82.9**	0.7 U	1 U	NA	**17,900**	**5.85**
CS-04	Grid Cell CS-04	10/17/23	**13,600**	1 U	**1.61**	NA	NA	1 U	**17.9**	**21.9**	**3.67**	NA	**17.6**	NA	**35.0**	0.7 U	1 U	NA	**14,800**	**5.61**
CS-05	Grid Cell CS-05	10/17/23	**13,100**	1 U	**2.21**	NA	NA	1 U	**17.8**	**13.0**	**2.50**	NA	**17.7**	NA	**25.8**	0.7 U	1 U	NA	**16,600**	**5.99**
CS-06	Grid Cell CS-06	11/14/23	**13,900**	1 U	**2.05**	NA	NA	1 U	**19.5**	**16.8**	**2.12**	NA	**22.3**	NA	**29.8**	0.7 U	1 U	NA	**16,000**	**5.62**
CS-07	Grid Cell CS-07	10/17/23	**12,100**	1 U	**1.32**	NA	NA	1 U	**19.5**	**12.1**	**1.58**	NA	**20.6**	NA	**28.9**	0.7 U	1 U	NA	**13,200**	**5.62**
CS-08	Grid Cell CS-08	10/17/23	**14,900**	1 U	**2.73**	NA	NA	1 U	**21.5**	**42.6**	**4.93**	NA	**20.7**	NA	**51.0**	0.7 U	1 U	NA	**16,300**	**5.90**
CS-09	Grid Cell CS-09	10/17/23	**10,500**	1 U	**2.50**	NA	NA	1 U	**15.8**	**31.7**	**5.53**	NA	**13.0**	NA	**41.5**	0.7 U	1 U	NA	**11,900**	**3.97**
CS-10	Grid Cell CS-10	11/10/23	**17,500**	1 U	**2.08**	NA	NA	1 U	**20.7**	**13.7**	**2.73**	NA	**23.8**	NA	**27.0**	0.7 U	1 U	NA	**21,000**	**6.44**
CS-11	Grid Cell CS-11	11/14/23	**14,300**	1 U	**1.24**	NA	NA	1 U	**16.8**	**7.92**	**1.75**	NA	**20.3**	NA	25	0.7 U	1 U	NA	**16,300**	5 U
CS-12	Grid Cell CS-12	10/17/23	**11,400**	1 U	**1.54**	NA	NA	1 U	**19.4**	**11.8**	**2.18**	NA	**19.6**	NA	**23.9**	0.7 U	1 U	NA	**14,400**	**5.37**
CS-13	Grid Cell CS-13	10/17/23	**28,900**	1 U	**1.44**	NA	NA	1 U	**21.6**	**61.6**	**8.79**	NA	**20.4**	NA	**57.5**	0.7 U	1 U	NA	**13,900**	**5.58**
CS-14C	Grid Cell CS-14	11/1/23	**11,400**	**2.75**	**8.59**	NA	NA	1 U	**12.2**	**35.9**	**21.8**	NA	**8.98**	NA	**39.7**	0.7 U	1 U	NA	**15,000**	**4.23**
CS-15	Grid Cell CS-15	11/10/23	**11,500**	1 U	**1.81**	NA	NA	1 U	**7.30**	**12.2**	**1.61**	NA	**6.12**	NA	**17.7**	0.7 U	1 U	NA	**11,800**	**3.42**
DUP-231110 (CS-15)	QA/QC	11/10/23	**9,160**	1 U	**1.86**	NA	NA	1 U	**7.29**	**14.9**	**1.66**	NA	**5.67**	NA	**17.1**	0.7 U	1 U	NA	**10,000**	**3.34**
CS-16	Grid Cell CS-16	10/17/23	**14,100**	1 U	**2.00**	NA	NA	1 U	**17.7**	**35.7**	**3.80**	NA	**18.7**	NA	**29.1**	0.7 U	1 U	NA	**16,700**	**5.72**

Appendix A - Table A-3 COIs - Soil Data Summary (Metals)
Maralco Property - Kent, WA

		Analyte	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Thallium	Zinc	Mercury	Silver	Selenium	Iron	Cobalt
		Ecology PCUL June 6 2024 - vadose (mg/kg)	33,000	5.2	7.3	820	63	0.77	1500	36	250	1100	68	0.09	130	0.07	0.61	0.78	36,000	11
		Ecology PCUL June 6 2024 - sat (mg/kg)	33,000	5.2	7.3	250	3.2	0.77	74	36	24	1100	48	0.004	85	0.07	0.61	0.78	36,000	11
		Min Ecology PCUL value (mg/kg)	33,000	5.2	7.3	250	3.2	0.77	74	36	24	1,100	48	0.004	85	0.07	0.61	0.78	36,000	11
CS-17	Grid Cell CS-17	10/17/23	**28,900**	1 U	**2.56**	NA	NA	1 U	**19.6**	**59.4**	**8.97**	NA	**14.8**	NA	**76.4**	0.7 U	1 U	NA	**15,000**	**4.78**
CS-18	Grid Cell CS-18	10/17/23	**42,400**	**1.67**	**2.79**	NA	NA	1 U	**26.4**	**165**	**17.9**	NA	**28.0**	NA	**128**	0.7 U	1 U	NA	**15,300**	**5.04**
CS-19C	Grid Cell CS-19	11/1/23	**10,200**	1 U	**7.60**	NA	NA	1 U	**11.0**	**22.0**	**6.98**	NA	**11.1**	NA	**31.9**	0.7 U	1 U	NA	**13,700**	**4.21**
CS-20	Grid Cell CS-20	11/1/23	**7,050**	1 U	**1.11**	NA	NA	1 U	**6.46**	**8.97**	**1.08**	NA	**5.43**	NA	**13.2**	0.7 U	1 U	NA	**9,220**	**2.59**
CS-21	Grid Cell CS-21	11/10/23	**14,400**	1 U	**3.09**	NA	NA	1 U	**9.45**	**15.1**	**2.19**	NA	**7.97**	NA	**21.5**	0.7 U	1 U	NA	**14,400**	**3.99**
CS-22	Grid Cell CS-22	10/30/23	**8,550**	1 U	**1.04**	NA	NA	1 U	**6.34**	**47.0**	**1.42**	NA	**4.88**	NA	**16.3**	0.7 U	1 U	NA	**10,400**	**2.44**
DUP-231030-2 (CS-22)	QA/QC	10/30/23	**7,490**	1 U	**1.21**	NA	NA	1 U	**7.44**	**57.6**	**1.87**	NA	**5.97**	NA	**19.5**	0.7 U	1 U	NA	**7,810**	**3.09**
CS-23	Grid Cell CS-23	10/17/23	**17,200**	**1.30**	**11.9**	NA	NA	1 U	**11.5**	**40.9**	**14.6**	NA	**7.69**	NA	**39.3**	0.7 U	1 U	NA	**30,100**	**3.84**
CS-24	Grid Cell CS-24	10/23/23	**8,660**	1 U	**2.42**	NA	NA	1 U	**6.64**	**10.5**	**2.06**	NA	**5.68**	NA	**15.6**	0.7 U	1 U	NA	**9,470**	**2.86**
CS-25	Grid Cell CS-25	10/23/23	**10,200**	1 U	**3.54**	NA	NA	1 U	**8.12**	**14.6**	**2.71**	NA	**7.07**	NA	**17.2**	0.7 U	1 U	NA	**11,400**	**3.65**
CS-26	Grid Cell CS-26	10/23/23	**12,500**	1 U	1 U	NA	NA	1 U	**8.51**	**43.0**	**1.75**	NA	**6.22**	NA	**18.9**	0.7 U	1 U	NA	**12,100**	**3.00**
DUP-231023 (CS-26)	QA/QC	10/23/23	**11,100**	1 U	**1.03**	NA	NA	1 U	**8.02**	**37.3**	**1.73**	NA	**6.08**	NA	**17.9**	0.7 U	1 U	NA	**11,200**	**2.89**
CS-27	Grid Cell CS-27	10/30/23	**7,650**	1 U	**1.78**	NA	NA	1 U	**7.32**	**11.5**	**1.49**	NA	**5.67**	NA	**30.1**	0.7 U	1 U	NA	**11,300**	**2.54**
CS-28	Grid Cell CS-28	11/1/23	**8,070**	1 U	**1.47**	NA	NA	1 U	**6.68**	**7.67**	**1.22**	NA	**5.97**	NA	**15.8**	0.7 U	1 U	NA	**9,750**	**2.78**
CS-29	Grid Cell CS-29	10/31/23	**11,900**	1 U	**1.35**	NA	NA	1 U	**6.99**	**14**	**2.52**	NA	**6.18**	NA	**17.8**	0.7 U	1 U	NA	**12,000**	**3.05**
CS-30B	Grid Cell CS-30B	10/31/23	**8,220**	1 U	**1.23**	NA	NA	1 U	**7.42**	**8.37**	**14.2**	NA	**5.04**	NA	**23.2**	0.7 U	1 U	NA	**10,100**	**2.37**
CS-32	Grid Cell CS-32	10/17/23	**13,200**	**1.20**	**5.02**	NA	NA	1 U	**9.83**	**19.6**	**3.77**	NA	**9.11**	NA	**27.7**	0.7 U	1 U	NA	**14,400**	**4.34**
CS-33	Grid Cell CS-33	10/23/23	**11,800**	1 U	**9.09**	NA	NA	1 U	**9.48**	**18.3**	**13.9**	NA	**7.83**	NA	**33.1**	0.7 U	1 U	NA	**11,300**	**4.8**
CS-34	Grid Cell CS-34	10/30/23	**6,900**	1 U	**1.08**	NA	NA	1 U	**9.19**	**12.5**	**1.62**	NA	**4.30**	NA	**13.8**	0.7 U	1 U	NA	**7,590**	**2.46**
CS-35	Grid Cell CS-35	10/30/23	**7,000**	1 U	**1.75**	NA	NA	1 U	**7.97**	**6.73**	1 U	NA	**5.61**	NA	**17.0**	0.7 U	1 U	NA	**9,790**	**2.62**
CS-36	Grid Cell CS-36	10/30/23	**11,100**	1 U	**2.88**	NA	NA	1 U	**7.92**	**7.20**	**1.12**	NA	**5.81**	NA	**16.0**	0.7 U	1 U	NA	**12,900**	**2.79**
CS-37	Grid Cell CS-37	10/30/23	**16,600**	1 U	**6.89**	NA	NA	1 U	**12.1**	**19.3**	**12.8**	NA	**13.9**	NA	**34.5**	0.7 U	1 U	NA	**18,000**	**6.02**
CS-38	Grid Cell CS-38	10/17/23	**20,100**	**1.04**	**3.9**	NA	NA	1 U	**20.1**	**101**	**21.5**	NA	**19.4**	NA	**97.7**	0.7 U	1 U	NA	**16,200**	**6.85**
CS-39	Grid Cell CS-39	10/17/23	**11,900**	1 U	**7.68**	NA	NA	1 U	**9.89**	**20.0**	**16.4**	NA	**9.03**	NA	**44.3**	0.7 U	1 U	NA	**12,800**	**5.32**
CS-40	Grid Cell CS-40	10/23/23	**7,980**	1 U	**2.56**	NA	NA	1 U	**6.36**	**7.99**	**1.97**	NA	**5.72**	NA	**19.1**	0.7 U	1 U	NA	**10,800**	**2.75**
CS-41	Grid Cell CS-41	10/30/23	**7,380**	**1.3**	**1.18**	NA	NA	1 U	**6.63**	**21.2**	**3.86**	NA	**6.86**	NA	**19.4**	0.7 U	1 U	NA	**10,100**	**4.39**
CS-42	Grid Cell CS-42	10/30/23	**11,100**	1 U	**2.82**	NA	NA	1 U	**8.49**	**14.5**	**2.50**	NA	**7.16**	NA	**23.1**	0.7 U	1 U	NA	**11,200**	**3.49**
CS-43	Grid Cell CS-43	10/30/23	**7,490**	1 U	**1.77**	NA	NA	1 U	**7.90**	**45.0**	**4.09**	NA	**5.33**	NA	**28.3**	0.7 U	1 U	NA	**7,810**	**2.66**
DUP-231030-1 (CS-43)	QA/QC	10/30/23	**8,040**	1 U	**1.73**	NA	NA	1 U	**6.57**	**23.8**	**3.67**	NA	**4.61**	NA	**22.7**	0.7 U	1 U	NA	**8,380**	**2.38**
CS-44	Grid Cell CS-44	10/17/23	**7,090**	1 U	**4.16**	NA	NA	1 U	**6.08**	**14.8**	**8.27**	NA	**4.86**	NA	**32.7**	0.7 U	1 U	NA	**9,400**	**2.32**
CS-45	Grid Cell CS-45	11/27/23	**17,400**	1 U	**3.87**	NA	NA	1 U	**19.6**	**78.6**	**6.24**	NA	**25.3**	NA	**104**	0.7 U	1 U	NA	**25,500**	**10.4**
CS-46	Grid Cell CS-46	11/27/23	**16,800**	1 U	**3.39**	NA	NA	1 U	**14.8**	**27.1**	**3.47**	NA	**18.3**	NA	**31.7**	0.7 U	1 U	NA	**19,600**	**7.37**
CS-47	Grid Cell CS-47	11/27/23	**16,500**	1 U	**1.16**	NA	NA	1 U	**22.9**	**117**	**6.92**	NA	**34.5**	NA	**81.7**	0.7 U	1 U	NA	**42,700**	**16.7**
CS-48	Grid Cell CS-48	11/27/23	**14,500**	1 U	**2.77**	NA	NA	1 U	**14.3**	**35.0**	**5.38**	NA	**17.4**	NA	**34.7**	0.7 U	1 U	NA	**17,400**	**5.03**
DUP-231127 (CS-48)	QA/QC	11/27/23	**17,000**	1 U	**2.70**	NA	NA	1 U	**14.6**	**48.7**	**6.70**	NA	**18.3**	NA	**41.1**	0.7 U	1 U	NA	**20,800**	**5.03**
CS-49	Grid Cell CS-49	11/17/23	**11,200**	1 U	**3.12**	NA	NA	1 U	**13.4**	**19.7**	**2.32**	NA	**13.6**	NA	**30.2**	0.7 U	1 U	NA	**15,800**	**5.95**
DUP-231117 (CS-49)	QA/QC	11/17/23	**12,700**	1 U	**3.56**	NA	NA	1 U	**14.5**	**20.2**	**2.63**	NA	**14.8**	NA	**32.3**	0.7 U	1 U	NA	**17,000**	**6.60**
CS-50	Grid Cell CS-50	11/17/23	**9,280**	1 U	**2.85**	NA	NA	1 U	**14.1**	**65.3**	**11.6**	NA	**20.0**	NA	**144**	0.7 U	1 U	NA	**21,200**	**9.61**
CS-51	Grid Cell CS-51	11/17/23	**11,200**	1 U	**2.19**	NA	NA	1 U	**22.2**	**21.8**	**2.76**	NA	**26.9**	NA	**29.1**	0.7 U	1 U	NA	**13,600**	**5.67**
CS-52	Grid Cell CS-52	11/17/23	**9,110**	**1.25**	**2.77**	NA	NA	1 U	**19.6**	**36.4**	**5.67**	NA	**23.5**	NA	**38.6**	0.7 U	1 U	NA	**10,600**	**6.12**
B-2	---	6/25/87	NA	**3.2**	**5.8**	NA	NA	**4.5**	**232**	**1500**	**144**	NA	**74**	NA	**1300**	0.2 U	3 U	0.3 U	NA	NA
B-3	---	6/25/87	NA	0.6 U	**4.4**	NA	NA	1.0 U	**14**	**16**	**14**	NA	**12**	NA	**58**	0.2 U	2 U	0.2 U	NA	NA
HB-8	0-1	9/11/90	**188,000**	NA	NA	NA	NA	NA	**154**	**6050**	**144**	**1520**	NA	NA	**3280**	NA	NA	NA	NA	NA
HB-8	2.5-3	9/11/90	**9,770**	NA	NA	NA	NA	NA	**15**	**153**	**6.8**	**101**	NA	NA	**78.7**	NA	NA	NA	NA	NA
HB-9	0-1	9/11/90	**17,700**	NA	NA	NA	NA	NA	**28**	**133**	**22.6**	**376**	NA	NA	**111**	NA	NA	NA	NA	NA
HB-9	3-4	9/11/90	**15,200**	NA	NA	NA	NA	NA	**18.4**	**38.7**	**5.7**	**238**	NA	NA	**36.5**	NA	NA	NA	NA	NA
SW-1	---	5/10/90	**39,400**	**4.1**	**3.1**	NA	NA	**1.4**	**54.7**	**562**	**61**	**285**	**22**	NA	**528**	**0.1**	**0.9**	1.2 U	**10,600**	**5.8**
SW-2	---	5/9/90	**9,970**	**0.2**	**2.2**	NA	NA	**1**	**15.7**	**59**	**22**	**201**	**13**	NA	**135**	**0.03**	0.3 U	0.6 U	**18,700**	**4.8**
SW-3	---	5/10/90	**25,600**	**0.83**	**3.9**	NA	NA	**0.9**	**27.7**	**231**	**24**	**286**	**15**	**NA**	**203**	0.1 U	0.3 U	0.7 U	**19,500**	**5.6**
SW-4	---	5/10/90	**17,200**	**4.09**	**53.4**	NA	NA	**6.9**	**58.5**	**183**	**89**	**396**	**31**	NA	**1200**	0.27 U	1.5 U	3.3 U	**43,300**	**11.2**
SW-6	---	5/10/90	**77,900**	**1.5**	**4.4**	NA	NA	**1**	**87.5**	**883**	**61**	**608**	**33**	NA	**678**	0.06 U	**0.5**	0.7 U	**17,700**	**5.6**
SS-1	---	10/28/16	**55,500**	NA	**6.78**	NA	NA	**0.619**	**36.3**	NA	**42**	NA	NA	NA	NA	**0.0564**	1.57 U	NA	NA	NA
SS-2	---	10/28/16	**22,200**	NA	**4.3**	NA	NA	**2.74**	**54.4**	NA	**53.7**	NA	NA	NA	NA	**0.116**	**0.776**	NA	NA	NA
SS-900 (SS-2 Dup)	---	10/28/16	**81,100**	NA	**9.47**	NA	NA	**5.56**	**112**	NA	**113**	NA	NA	NA	NA	**0.158**	**3.14**	NA	NA	NA
CS-14	---	10/17/23	**22,100**	**3.11**	**42.4**	NA	NA	1 U	**18.9**	**126**	**31.3**	NA	**13.1**	NA	**174**	1 U	1 U	NA	**75,800**	**5.08**
CS-19	---	10/17/23	**148,000**	**24.6**	**4.47**	NA	NA	**7.51**	**191**	**2,040**	**184**	NA	**87.5**	NA	**1,540**	1 U	**1.48**	NA	**12,300**	**6.64**
CS-30C	---	11/1/23	**13,400**	1 U	**17.7**	NA	NA	1 U	**10.6**	**19.5**	**3.74**	NA	**5.61**	NA	**33.9**	1 U	1 U	NA	**48,800**	**2.57**
CS-31B	---	10/31/23	**59,700**	**6.2**	**17.3**	NA	NA	**1.06**	**50.6**	**715**	**105**	NA	**27.6**	NA	**535**	1 U	1 U	NA	**18,400**	**4.80**
CS-31C	---	11/1/23	**11,600**	1 U	**15.5**	NA	NA	1 U	**8.93**	**72.9**	**12.4**	NA	**7.23**	NA	**62.1**	1 U	1 U	NA	**29,000**	**3.24**
DUP-231101 (CS-31C)	---	11/1/23	**10,500**	1 U	**14.4**	NA	NA	**1.46**	**10.0**	**40.5**	**12.1**	NA	**8.03**	NA	**93.7**	1 U	1 U	NA	**56,300**	**3.58**

Notes:
mg/kg - milligrams per kilogram
Bold - analyte detected
U - not detected at listed reporting limit
Lab qualifiers and data validation qualifiers have been removed except for "U" flags.

NA - not analyzed
ND - not detected (detection limits not reported)
Samples excluded from COI analysis (these are not shown on this table) include material that is dross or a mix of soil and dross or has been removed during previous site efforts

Appendix A - Table A-4 COIs - Soil Data Summary (Non-Metals)
Maralco Property - Kent, WA

Analyte				NWTPH-Gx	NWTPH-Dx	NWTPH-Oil	Chloride	Fluoride	Nitrate	Ammonia Nitrogen	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Total cPAH	Benzo(G,H,I)Perylene	Anthracene	Acenaphthene	Acenaphthylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Di-n-Butylphthalate	bis(2-Ethylhexyl)phthalate	Di-n-octyl Phthalate	Phenol	4-Methylphenol	Benzoic Acid	Silanol, trimethyl
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)				30	2000	2000	NC	NC	130000	NC	0.0024	0.37	0.1	0.51	0.084	na	47	3.1	na	0.02	1.58	4.5	na	0.02	0.082	1.7	0.28	0.1	0.55	0.76	1.5	40	NC
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)				30	2000	2000	NC	NC	130000	NC	0.00015	0.023	0.0059	0.03	0.0042	na	2.3	0.16	na	0.001	0.08	0.24	na	0.001	0.0042	0.089	0.015	0.01	0.03	0.047	0.085	2.9	NC
Min of SL				30	2000	2000	NC	NC	130000	NC	0.00015	0.023	0.0059	0.03	0.0042	na	2.3	0.16	na	0.001	0.08	0.24	na	0.001	0.004	0.089	0.015	0.01	0.03	0.047	0.085	2.9	NC
Min Detected Value				**ND**	**1,100**	**ND**	**10**	**0.544**	**0.954**	**4.26**	**0.00014**	**0.000476**	**ND**	**0.17**	**0.001**	**0.00184**	**ND**	**ND**	**ND**	**0.00111**	**ND**	**0.00473**	**0.000954**	**0.00159**	**ND**	**0.00249**	**ND**	**0.51**	**3**	**ND**	**0.34**	**ND**	**0.36**
Max Detected Value				**ND**	**1,100**	**ND**	**29,900**	**579**	**13.8**	**399**	**0.00132**	**0.074**	**ND**	**0.17**	**0.069**	**0.00184**	**ND**	**ND**	**ND**	**1.9**	**ND**	**0.52**	**3.1**	**3.3**	**ND**	**0.59**	**ND**	**11.00**	**3**	**ND**	**0.34**	**ND**	**0.36**
Lowest Dection Limit (for samples with only ND values)				**0.1**	--	**11**	--	--	--	--	--	--	**0.0005**	**0.0015**	--	--	**0.0066**	**0.0066**	**0.0066**	--	**0.0066**	--	--	--	0.022	--	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**
Is Value above SL (lowest SL)				**no**	**no**	**no**	**no**	**no**	**no**	**no**	**yes**	**yes**	**no**	**yes**	**yes**	**no**	**no**	**no**	**no**	**yes**	**no**	**yes**	**no**	**yes**	**yes**	**yes**	**no**	**yes**	**yes**	**yes**	**yes**	**no**	**no**
Sample ID	**Depth (feet below ground surface)**	**Vadoese or Saturated**	**Date**	**Results (mg/kg)**																													
B-1-5	5	vadose	10/27/16	NA	4.4 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.022 U	0.0066 U	0.0066 U	0.022 U	0.022 U	NA	NA	NA	NA	NA	NA	NA
B-1-17	17	saturated	10/27/16	0.1 U	5.38 U	13.5 U	NA	NA	NA	NA	**0.000522**	0.005 U	0.0005 U	0.0015 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	0.00808 U	**0.00473**	**0.000954**	0.00808 U	0.0269 U	0.0269 U	NA	NA	NA	NA	NA	NA	NA
B-2-4	4	vadose	10/27/16	NA	4.61 U	11.5 U	NA	NA	NA	NA	NA	NA	NA	NA	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.00692 U	0.0231 U	**0.00132**	0.00692 U	0.0231 U	0.0231 U	NA	NA	NA	NA	NA	NA	NA
B-2-16.5	16.5	saturated	10/27/16	NA	5.04 U	12.6 U	NA	NA	NA	NA	NA	NA	NA	NA	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.00756 U	0.0252 U	0.00756 U	0.00756 U	0.0252 U	0.0252 U	NA	NA	NA	NA	NA	NA	NA
B-3-6	6	vadose	10/27/16	NA	45.1 U	113 U	NA	NA	NA	NA	NA	NA	NA	NA	**0.001**	**0.00184**	0.00676 U	0.00676 U	0.00676 U	**0.00111**	0.00676 U	0.0225 U	**0.00198**	**0.00159**	0.0225 U	**0.00249**	NA	NA	NA	NA	NA	NA	NA
B-3-16	16	saturated	10/27/16	0.1 U	5.5 U	13.8 U	NA	NA	NA	NA	**0.000205**	0.005 U	0.0005 U	0.0015 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.00826 U	0.0275 U	0.00826 U	0.00826 U	0.0275 U	0.0275 U	NA	NA	NA	NA	NA	NA	NA
B-4-7	7	vadose	10/27/16	NA	NA	NA	**44.4**	**5.03**	**2.25**	**15.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4-9	9	saturated	10/27/16	0.1 U	NA	NA	NA	NA	NA	NA	**0.00132**	**0.000476**	0.0005 U	0.0015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4-15	15	saturated	10/27/16	NA	NA	NA	**309**	**2.75**	1.37 U	**5.92**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-8	8	saturated	10/27/16	NA	NA	NA	**41.4**	**31.8**	**0.954**	5.27U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-10	10	saturated	10/27/16	0.1 U	NA	NA	NA	NA	NA	NA	**0.000604**	**0.000557**	0.0005 U	0.0015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5-15	15	saturated	10/27/16	NA	NA	NA	**4,280**	**0.544**	1.38 U	**33.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-7.5	7.5	saturated	10/27/16	NA	NA	NA	**212**	**7.72**	1.31 U	**27.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-9.5	9.5	saturated	10/27/16	0.1 U	NA	NA	NA	NA	NA	NA	**0.00014**	0.005 U	0.0005 U	0.0015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6-15	15	saturated	10/27/16	NA	NA	NA	**183**	**35.9**	1.45 U	**9.72**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14	5-7.5'	vadose	8/29/22	NA	NA	NA	10 U	5 U	NA	**162**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14	10-11.5'	saturated	8/29/22	NA	NA	NA	10 U	5 U	NA	**82.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15	5-6.5'	vadose	8/29/22	NA	NA	NA	10 U	5 U	NA	**135**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15	8.5-10'	saturated	8/29/22	NA	NA	NA	**19**	5 U	NA	**123**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-16	6.5-8'	saturated	8/30/22	NA	NA	NA	**12**	5 U	NA	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-16	10-11.5'	saturated	8/30/22	NA	NA	NA	10 U	5 U	NA	**74.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-18	5-7.2'	saturated	8/30/22	NA	NA	NA	10 U	5U	NA	**165**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**76.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-18	14-15'	saturated	8/31/22	NA	NA	NA	10 U	5 U	NA	**94.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-19	6-8'	saturated	8/31/22	NA	NA	NA	**12**	5 U	NA	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-19	12.5-15'	saturated	8/31/22	NA	NA	NA	10 U	5 U	NA	**136**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20	6.5-7.5'	saturated	8/31/22	NA	NA	NA	**12**	5 U	NA	**301**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20	13.5-15'	saturated	8/31/22	NA	NA	NA	10 U	5 U	NA	**399**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21	6-10'	saturated	8/31/22	NA	NA	NA	**13**	5 U	NA	**161**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21/ DUP01-220831	11.5-14'	saturated	8/31/22	NA	NA	NA	10 U 10 U	5 U 5 U	NA	**94.1** **156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	3.5-5'	vadose	8/31/22	NA	NA	NA	**12**	5 U	NA	**129**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	5-7'	saturated	8/31/22	NA	NA	NA	**12**	5 U	NA	**155**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22	11-13.2'	saturated	8/31/22	NA	NA	NA	**10**	5 U	NA	**193**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R	5.5-7'	vadose	8/30/22	NA	NA	NA	10 U	41	NA	**286**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R	11-12'	saturated	8/30/22	NA	NA	NA	**22**	5 U	NA	**285**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**285**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	5-7'	vadose	8/30/22	NA	NA	NA	10 U	5 U	NA	**103**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7	13.5-15'	saturated	8/30/22	NA	NA	NA	**950**	5 U	NA	**99.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	4-5'	saturated	8/30/22	NA	NA	NA	**80**	5 U	NA	**189**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	12-13'	saturated	8/30/22	NA	NA	NA	**1,600**	5 U	NA	**197**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3A (5')	5'	vadose	7/21/17	2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4A (6.5')	6.5'	vadose	7/21/17	2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6 (6.5')	6.5'	vadose	7/21/17	2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-1 5-6'	5-6'	vadose	5/24/21	5 U	50 U	250 U	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.06 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-2 6-7.5'	6-7.5'	saturated	5/24/21	5 U	**1,100**	250 U	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.06 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14 5-7.5'	5-7.5'	saturated	8/29/22	NA	NA	NA	10 U	5 U	NA	**162**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-14 10-11.5'	10-11.5'	saturated	8/29/22	NA	NA	NA	10 U	5 U	NA	**82.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15 5-6.5'	5-6.5'	saturated	8/29/22	NA	NA	NA	10 U	5 U	NA	**135**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-15 8.5-10'	8.5-10'	saturated	8/29/22	NA	NA	NA	**19**	5 U	NA	**123**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-16 6.5-8'	6.5-8'	saturated	8/30/22	NA	NA	NA	**12**	5 U	NA	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-19 12.5-15'	12.5-15'	saturated	8/31/22	NA	NA	NA	10 U	5 U	NA	**136**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20 6.5-7.5'	6.5-7.5'	saturated	8/31/22	NA	NA	NA	**12**	5 U	NA	**301**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-20 13.5-15'	13.5-15'	saturated	8/31/22	NA	NA	NA	10 U	5 U	NA	**399**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21 6-10'	6-10'	saturated	8/31/22	NA	NA	NA	**13**	5 U	NA	**161**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-21 11.5-14' DUP01-220831	11.5-14'	saturated	8/31/22	NA	NA	NA	10 U 10 U	5 U 5 U	NA	**94.1** **156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22 3.5-5'	3.5-5'	vadose	8/31/22	NA	NA	NA	**12**	5 U	NA	**129**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22 5-7'	5-7'	saturated	8/31/22	NA	NA	NA	**12**	5 U	NA	**155**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DPT-22 11-13.2'	11-13.2'	saturated	8/31/22	NA	NA	NA	**10**	5 U	NA	**193**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-01 5-6'	5-6'	vadose	8/29/22	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-02 5-6'	5-6'	vadose	8/29/22	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-02 15-16'	15-16'	saturated	8/29/22	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-UST-03 1-2'	1-2'	vadose	8/29/22	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R 5.5-7'	5.5-7'	saturated	8/30/22	NA	50 U	250 U	10 U	41	NA	**286**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5R 11-12'	11-12'	saturated	8/30/22	NA	50 U	250 U	**22**	5 U	NA	**285**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7 5-7'	5-7'	saturated	8/30/22	NA	50 U	250 U	10 U	5 U	NA	**103**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7 13.5-15'	13.5-15'	saturated	8/30/22	NA	50 U	250 U	**950**	5 U	NA	**99.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8 4-5'	4-5'	vadose	8/30/22	NA	50 U	250 U	**80**	5 U	NA	**189**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8 12-13'	12-13'	saturated	8/30/22	NA	50 U	250 U	**1,600**	5 U	NA	**197**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-1	---	no information	5/10/90	NA	NA	NA	NA	NA	NA	NA	NA	1.7 U	NA	1.7 U	0.17 U*	NA	NA	NA	NA	1.7 U	1.7 U	1.7 U	1.7 U	**0.21**	NA	1.7 U	1.7 U	**0.51**	1.7 U	1.7 U	1.7 U	8.2 U	**0.36**
SW-2	---	no information	5/9/90	NA	NA	NA	NA	NA	NA	NA	NA	0.007 U	NA	0.007 U	0.088 U*	NA	NA	NA	NA	**0.12**	0.88 U	0.88 U	0.88 U	**0.16**	NA	0.88 U	0.88 U	**0.51**	0.88 U	0.88 U	0.88 U	4.3 U	NA
SW-4	---	no information	5/10/90	NA	NA	NA	NA	NA	NA	NA	NA	**0.074**	NA	**0.17**	**0.069**	NA	NA	NA	NA	**1.9**	**1.1**	3.8 U	**3.1**	**3.3**	NA	3.8 U	3.8 U	14 U	**3**	3.8 U	3.8 U	19 U	NA
SW-8	---	no information	5/9/90	NA	NA	NA	NA	NA	NA	NA	NA	0.022 U	NA	0.022 U	0.28 U*	NA	NA	NA	NA	**1.1**	2.8 U	**0.52**	**0.89**	2.2 U	NA	**0.59**	2.8 U	**11**	2.8 U	2.8 U	**0.34**	14 U	NA
SS-1	---	no information	10/28/16	NA	NA	NA	**82.3**	**226**	**3.62**	**4.26**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-2	---	no information	10/28/16	NA	NA	NA	**26,800**	**383**	**13.8**	**6.65**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS-900 (SS-2 Dup)	---	no information	10/28/16	NA	NA	NA	**29,900**	**579**	**8.21**	15.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SED-01	---	no information	6/3/21	NA	NA	NA	**49.4**	**45.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
All units in mg/kg. mg/kg - milligrams per kilogram
BOLD - constituent detected
NA - not analyzed
U* - Constituent not detected at associated reporting limit, benzo(a)pyrene reporting limit provided
cPAH = Carcinogenic Polycyclic aromatic hydrocarbons
Total cPAH is the sum of detected values based on the toxic equivalency factor (TEQ) per WAC 173-340-708(8)(e)

U - Constituent not detected at associated reporting level.
ft bgs - feet below ground surface
Lab qualifiers and data validation qualifiers have been removed except for "U" flags.
ND - not detected above laboratory reporting limits

Appendix A - Table A-5 COIs Soil Data Summary - Off-Property Ditches
Maralco Property - Kent, WA

Sample ID	Sample depth (ft bgs)	Dated Collected	Aluminum	Iron	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Nickel	Silver	Mercury	Zinc
PCUL - Soil Protective of SW Vadose (fresh water, mg/kg)			33,000	36,000	5.2	7.3	0.77	1500	11	36	250	68	0.61	0.07	130
PCUL - Soil Protective of SW Saturated (fresh water, mg/kg)			33,000	36,000	5.2	7.3	0.77	74	11	36	24	48	0.61	0.07	85
Max value detected			115,000	81,800	55.4	45.8	11.8	208	6.81	1,410	261	64.2	1.2	0.73	2,190
COI? Is concentration > PCUL			yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
General Location	Sample ID	Depth (feet below ground	Date	Results (mg/kg)											
Upstream	B-4	---	6/25/87	NA	NA	0.6 U	**5.2**	2.0 U	**14**	NA	**21**	**20**	**15**	3.0 U	0.1 U	**67**
S. 202nd ROW	B-1	---	6/25/87	NA	NA	**1.2**	**19**	2.0 U	**36**	NA	**262**	**64**	**31**	3.0 U	**0.26**	**365**
	SW-8	---	5/9/90	**93,700**	**40,600**	6.6	**6.8**	**7.4**	**127**	**5.4**	**1050**	**261**	**46**	**1.2**	**0.73**	**957**
	SED-02	0-0.5	6/9/21	**12,000**	**19,000**	2 U	**3.79**	1 U	**11.6**	**4.21**	**41.2**	**10.4**	**10.7**	NA	NA	**109**
	SED-02	0.5-1	6/9/21	**12,100**	**16,500**	2 U	**2.18**	1 U	**10.1**	**2.85**	**20.2**	**8.24**	**7.54**	NA	NA	**58.1**
	SED-03	0-0.5	6/9/21	**23,200**	**81,800**	8 U	**19.2**	2 U	**31.4**	10 U	**159**	**40.2**	**25.5**	NA	NA	**325**
	SED-03	0.5-1	6/9/21	**115,000**	**29,000**	**55.4**	**7.21**	**11.8**	**208**	10 U	**1,410**	**189**	**64.2**	NA	NA	**2,190**
	SED-04	0-0.5	7/11/23	NA	NA	NA	**16.3**	**1.04**	**14.9**	NA	**82.6**	NA	**8.12**	0.57 U	0.66 U	NA
	SED-04	0.5-1	7/11/23	NA	NA	NA	**6.86**	1 U	**11.7**	NA	**44.0**	NA	**9.74**	0.57 U	0.66 U	NA
	SED-05N	0-0.5	7/11/23	NA	NA	NA	**7.1**	1 U	**11.6**	NA	**18.6**	NA	**10.3**	0.57 U	0.66 U	NA
	SED-05	0-0.5	7/11/23	NA	NA	NA	**28.6**	**1.99**	**26.1**	NA	**149.0**	NA	**16.4**	0.57 U	0.66 U	NA
	SED-05	0.5-1	7/11/23	NA	NA	NA	**15.2**	1 U	**16**	NA	**68.0**	NA	**9.20**	0.57 U	0.66 U	NA
	SED-05	1-1.5	7/11/23	NA	NA	NA	**30.8**	**1.73**	**26.9**	NA	**207**	NA	**13.9**	0.5U	0.66 U	NA
	SED-05	1.5-2	7/11/23	NA	NA	NA	**16.0**	**1.01**	**23.1**	NA	**118**	NA	**12.3**	0.25U	0.33U	NA
	SED-05S1	0-0.5	7/11/23	NA	NA	NA	**45.8**	**1.15**	**10.3**	NA	**30.8**	NA	**6.58**	0.57 U	0.66 U	NA
	SED-05S1	0.5-1	7/11/23	NA	NA	NA	**40.7**	1 U	**2.35 J**	NA	5 UJ	NA	**1.31 J**	0.57 U	0.66 U	NA
	SED-05S1	1-1.5	7/11/23	NA	NA	NA	**7.50**	1U	**7.86**	NA	**11.5**	NA	**4.44**	0.25U	0.33U	NA
	SED-05S1	1.5-2	7/11/23	NA	NA	NA	**2.34**	1U	**6.44**	NA	**7.82**	NA	**3.93**	0.25U	0.33U	NA
	SED-05S2	0-0.5	7/11/23	NA	NA	NA	**2.64**	1 U	**9.40**	NA	**14.8**	NA	**6.95**	0.57 U	0.66 U	NA
	SED-05S3	0-0.5	7/11/23	NA	NA	NA	**2.89**	2 U	**8.18**	NA	**16.0**	NA	**7.25**	0.57 U	0.66 U	NA
	SED-06	0-0.5	7/11/23	NA	NA	NA	**25.9**	**1.92**	**12.3**	NA	**89.4**	NA	**6.96**	0.57 U	0.66 U	NA
	SED-06	0.5-1	7/11/23	NA	NA	NA	**9.63**	**2.51**	**26.3**	NA	**277**	NA	**13.0**	0.57 U	0.66 U	NA
	SED-06	1-1.5	7/11/23	NA	NA	NA	**11.4**	**4.65**	**23.1**	NA	**189**	NA	**14.7**	0.5U	0.66 U	NA
	SED-06	1.5-2	7/11/23	NA	NA	NA	**3.36**	1U	**8.35**	NA	**16.1**	NA	**5.15**	0.25U	0.33U	NA
	SED-07N	0.5-1	7/11/23	NA	NA	NA	**3.28**	1 U	**13.6**	NA	**24.9**	NA	**12.6**	0.57 U	0.66 U	NA
	SED-07	0-0.5	7/11/23	NA	NA	NA	**19.6**	**1.24**	**12.9**	NA	**120**	NA	**8.27**	0.57 U	0.66 U	NA
	SED-07	0.5-1	7/11/23	NA	NA	NA	**3.73**	**4.45**	**77.2**	NA	**495**	NA	**24.3**	0.57 U	0.66 U	NA
	SED-07	1-1.5	7/11/23	NA	NA	NA	**2.97**	1 U	**7.58**	NA	**34.7**	NA	**4.88**	0.57 U	0.66 U	NA
	SED-07S1	0-0.5	7/11/23	NA	NA	NA	**6.82**	1 U	**9.49**	NA	**23.9**	NA	**6.89**	0.57 U	0.66 U	NA
	SED-07S2	0-0.5	7/11/23	NA	NA	NA	**4.78**	1 U	**8.33**	NA	**14.3**	NA	**6.53**	0.57 U	0.66 U	NA
	SED-07S3	0-0.5	7/11/23	NA	NA	NA	**5.71**	1 U	**8.05**	NA	**16.0**	NA	**6.46**	0.57 U	0.66 U	NA
	SED-08	0-0.5	7/11/23	NA	NA	NA	**19.8**	**1.34**	**18.9**	NA	**137**	NA	**9.62**	0.57 U	0.66 U	NA
	SED-08	0.5-1	7/11/23	NA	NA	NA	**9.50**	**1.78**	**30.6**	NA	**196**	NA	**14.8**	0.57 U	0.66 U	NA
	SED-08	1-1.5	7/11/23	NA	NA	NA	**5.85**	1 U	**16.2**	NA	**95.6**	NA	**7.18**	0.57 U	0.66 U	NA
KCDD#1 Wetland	KCDD-S	0.5-1	8/24/21	**18,400**	NA	**2.89**	**18.9**	2 U	**38.7**	**6.81**	**64.6**	**60.6**	**20.8**	2 U	NA	NA
	KCDD-N	0.5-1	8/24/21	**23,600**	NA	**2.95**	**10.8**	**2.01**	**23.1**	**5.27**	**98.6**	**54.7**	**14.7**	1 U	NA	NA

NOTES:

Bold - analyte detected
mg/kg - milligrams per kilogram dry weight
U - Constituent not detected at associated reporting level.
Lab qualifiers and data validation qualifiers have been removed except for "U" flags.

NA - not analyzed or not available
ROW - right of way
ft bgs - feet below ground surface

TableA-6 - Stockpile Data Summary
Maralco Property - Kent, WA

Sample ID:		Bags	Pile-A	Pile-B	Pile-C	Pile-D	Pile-E	Pile-F	C1	C1 Duplicate	C2	G1	G2	C3	C4	BH-1	BH-2	BD-5	BD-6	BD-8	BD-9	BD-10	BD-11	BD-12	BD-13	BD-14	BD-15	BD-16	BD-17
Date:		11/30/21	11/30/21	11/30/21	11/30/21	11/30/21	11/30/21	11/30/21	6/1/87	6/1/87	6/1/87	6/1/87	6/1/87	6/1/87	6/1/87	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90	1/1/90
Source Report:		*CRETE 2021-2022*							*Site Assessment Report, E&E 1987*							*Draft Phase I Remedial Investigation Report, MKE 1991*													
Material Pile:		Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor			Aluminum Oxide		Yellow Dross	KBI Dross	Baghouse Dust	Baghouse Dust	Baghouse Dust	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
		Filter Bag Media	Washed Oxides			KBI Dross	Washed Oxides		Outdoor Dross	Outdoor Dross	Outdoor Dross	Gray Substance	Outdoor Dross	Indoor Dross	Indoor Dross	Indoor Dross	Indoor Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross	Black Dross
pH	S.U.	**4.5**	**8.7**	**8.2**	**8**	**8**	**8.7**	**8.4**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Total Sulfide	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Fluoride	mg/kg	**150**	----	**1,400**	**2,200**	**340**	----	**460**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Potassium	mg/kg	**1,240**	----	**47,100**	**8,330**	**29,200**	----	**8,640**	----	----	----	----	----	----	----	**190,000**	**86,600**	**17,300**	**43,400**	**115,000**	**70,700**	**27,900**	**57,000**	**29,000**	**22,400**	**33,600**	**17,500**	**42,000**	**22,000**
Chloride	mg/kg	**14,000**	----	**85,000**	**20,000**	**59,000**	----	**6,700**	----	----	----	----	----	----	----	**140,642**	**150,755**	**15,752**	**59,427**	**131,988**	**95,593**	**2,025**	**41,901**	**20,541**	**30,614**	**5,728**	**1,655**	**80**	**108**
Ammonia	mg/kg	**2,010**	----	**180**	----	**958**	----	**33.2**	----	----	----	----	----	----	----	**292**	**188**	**153**	**686**	**149**	**95**	**26**	**109**	**46**	**101**	**197**	**145**	**61**	**109**
Kjeldahl Nitrogen	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**884**	**677**	**4,089**	**3,006**	**554**	**664**	**398**	**824**	**684**	**856**	**879**	**777**	**646**	**795**
Cyanide	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**0.67**	**0.42**	**1.3**	**1.5**	**0.66**	**0.56**	**1.04**	**1.07**	**1.53**	**1.08**	**1.51**	**0.7**	**0.74**	**1.49**
Calcium	mg/kg	----	**116,100**	----	----	----	**11,100**	----	----	----	----	----	----	----	----	**2840**	**4200**	**6,800**	**4,340**	**5,120**	**5,000**	**23,000**	**7,600**	**12,500**	**4,700**	**6,700**	**7,350**	**13,900**	**10,100**
Metals - Method SW6010/6020																						Metals - Method SW6010/6020							
Aluminum	mg/kg	**169,000**	**15,100**	**134,000**	**178,000**	**194,000**	**144,000**	**210,000**	----	----	----	----	----	----	----	**172,000**	**130,000**	**211,000**	**155,000**	**130,000**	**140,000**	**194,000**	**147,000**	**185,000**	**153,000**	**166,000**	**175,000**	**145,000**	**18,600**
Boron	mg/kg	**19.5**	----	**151**	**17.2**	**651**	----	**241**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iron	mg/kg	**122,000**	----	**3,350**	**4,020**	**3,500**	----	**6,290**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Magnesium	mg/kg	2.6 U	**20,100**	**11,000**	**2,800**	**4,800**	**19,200**	**7,300**	----	----	----	----	----	----	----	**19,200**	**15,000**	**21,600**	**20,500**	**24,800**	**22,800**	**30,000**	**27,500**	**39,600**	**19,700**	**24,300**	**33,200**	**38,200**	**61,700**
Sodium	mg/kg	**1,320**	----	**49,100**	**58,800**	**25,100**	----	**9,020**	----	----	----	----	----	----	----	**93,100**	**65,000**	----	----	----	----	----	----	----	----	----	----	----	----
Strontium	mg/kg	**1.64**	**355**	**156**	**35.3**	**258**	**300**	**167**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Titanium	mg/kg	**89.2**	**2590**	**543**	**245**	**181**	**2560**	**377**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Metals - Method SW6010/6020																						Metals - Method SW6020							
Antimony	mg/kg	**23.9**	**21**	**18.4**	**17.8**	**5.49**	**18**	**7.9**	**19**	**16**	**57**	**3.1**	**20**	**2.9**	**107**	3.15 U	----	2.88 U	2.89 U	----	2.78 U	**4.65**	----	**3.9**	----	**3**	----	----	----
Arsenic	mg/kg	**3.23**	**8**	**3.93**	1 U	**1.15**	**7**	**3.65**	**8.6**	**7.2**	**4.1**	**3.9**	**4.5**	**1.5**	**3.8**	0.633 U	----	**0.722**	**2.75**	----	**1.94**	**8.61**	----	**4.87**	----	**5.25**	----	----	----
Barium	mg/kg	----	**115**	----	----	----	**112**	----	----		----	----	----	----	----	**65.2**	**81.2**	**91.5**	**66.1**	**61.5**	**76.4**	**120**	**128**	**152**	**66.8**	**86.6**	**105**	**167**	**236**
Beryllium	mg/kg	----	**3**	----	----	----	**3**	----	**6**	**7.2**	**26**	**14**	**6**	**3.9**	2.0 U	**1.26**	----	**2.6**	**1.88**	----	**1.94**	**8.377**	----	**5.65**	----	**2.8**	----	----	----
Cadmium	mg/kg	**5.46**	**4.4**	**4.35**	**1.93**	**9.23**	**4.3**	**4.55**	**7.5**	**6.8**	**3.4**	**1.2**	**4.1**	**13**	**19**	**2.05**	----	**5.19**	**2.31**	----	**2.36**	**6.98**	----	**7.8**	----	**5.07**	----	----	----
Chromium	mg/kg	**583**	**231**	**201**	**86.1**	**2,350**	**214**	**171**	**588**	**637**	**442**	**233**	**186**	**975**	**21**	**153**	**189**	**196**	**119**	**412**	**120**	**349**	**140**	**1,860**	**1,200**	**324**	**146**	**322**	**207**
Cobalt	mg/kg	20 U	4	**2.59**	**1.29**	**3.65**	**4**	**2.58**	----		----	----	----	----	----	**4.1**	----	**7.36**	**3.47**	----	**11**	**6.28**	----	**8.38**	----	----	**7.52**	----	----
Copper	mg/kg	**8,350**	**2,340**	**5,010**	**4,810**	**5,430**	**2,340**	**4,460**	**13,300**	**27,800**	**2610**	**2190**	**2710**	**5120**	**198**	**1,200**	**1,420**	**2,860**	**1,660**	**1,200**	**746**	**4,600**	**2,100**	**2,180**	**1,600**	**5,400**	**1,290**	**2,100**	**1,300**
Iron	mg/kg	----	**9,900**	----	----	----	**10,200**	----	----		----	----	----	----	----	**3,630**	----	**8100**	**3040**	----	**6700**	**6500**	----	**6000**	----	----	**7200**	----	----
Lead	mg/kg	**345**	**165**	**235**	**192**	**106**	**163**	**94.3**	**861**	**241**	**226**	**146**	**176**	**307**	**587**	**110**	**108**	**144**	**115**	**93.1**	**97.2**	**116**	**129**	**214**	**103**	**81.1**	**70**	**172**	**176**
Manganese	mg/kg	**1,340**	**1,340**	**1,160**	**403**	**3,240**	**1,280**	**1,640**	----		----	----	----	----	----	**1510**	**1100**	**19,600**	**1,070**	**1,000**	**986**	**893**	**827**	**1,060**	**1,200**	**841**	**1,220**	**879**	**1,270**
Mercury	mg/kg	----	0.5 U	----	----	----	0.5 U	----	0.2 U	0.2 U	0.2 U	0.1 U	**0.27**	**0.44**	**0.49**	**0.26**	----	**0.351**	**0.064**	----	**0.059**	**0.238**	----	**0.155**	----	----	**0.076**	----	----
Nickel	mg/kg	**318**	**67**	**111**	**59.2**	**61.2**	**69**	**66**	**438**	**355**	**118**	**110**	**47**	**81**	**15**	**31.5**	----	**67.9**	**39.1**	----	**36.1**	**115**	----	**56.5**	----	----	**57.7**	----	----
Selenium	mg/kg	----	**<3**	----	----	----	**<3**	----	0.3 U	0.3 U	0.3 U	0.3 U	**0.48**	0.2 U	**1.5**	0.633 U	----	0.577 U	0.578 U	----	0.555 U	0.931 U	----	0.780 U	----	----	0.700 U	----	----
Silver	mg/kg	----	**1**	----	----	----	**1**	----	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.2 U	**6.9**	**1.57** U	----	1.44 U	1.45 U	----	1.39 U	2.33 U	----	1.95 U	----	----	1.75 U	----	----
Thallium	mg/kg	----	0.5 U	----	----	----	0.5 U	----	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 U	**0.71**	0.633 U	----	0.577 U	0.578 U	----	0.555 U	0.931 U	----	0.780 U	----	----	0.700 U	----	----
Vanadium	mg/kg	----	**199**	----	----	----	**197**	----	----		----	----	----	----	----	**84.7**	----	**137**	**84.8**	----	**197**	**98.4**	----	**280**	----	----	**124**	----	----
Zinc	mg/kg	**5,070**	**1,950**	**2,950**	**3,270**	**1,030**	**1,860**	**1,480**	**7,600**	**6,960**	**1,760**	**1,140**	**1,130**	**3,020**	**16,500**	**773**	**871**	**2,000**	**1,060**	**952**	**634**	**6,100**	**1,730**	**2,000**	**780**	**2,820**	**1,320**	**1,870**	**960**
TCLP Metals - Method SW6020, 1311																						TCLP Metals - Method SW6020							
Aluminum	mg/L	----	----	----	----	----	----	----	----		----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Arsenic	mg/L	1 U	0.002 U	1 U	1 U	1 U	0.002 U	1 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Barium	mg/L	1 U	**0.09**	1 U	1 U	1 U	**0.09**	1 U	**0.82**	**0.82**	**0.01**	**0.29**	**0.66**	**0.60**	**0.30**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cadmium	mg/L	1 U	**0.010**	1 U	1 U	1 U	**0.012**	1 U	**0.14**	**0.01**	**0.016**	**0.01**	**0.05**	**0.01**	**0.25**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Chromium	mg/L	1 U	**0.018**	1 U	1 U	1 U	**0.012**	1 U	**0.1**	**0.08**	**0.05**	**0.03**	**0.014**	**0.047**	**0.024**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cr(VI)	mg/L	----	----	----	----	----	----	----	----		----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Copper	mg/L	----	**5.2**	----	----	----	**5**	----	**38**	**27.0**	**6.20**	**1.10**	**2.50**	**13.0**	**0.29**	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lead	mg/L	**2.1**	0.05 U	1 U	1 U	1 U	0.05 U	1 U	**1.6**	**1.30**	**0.11**	**0.05**	0.05 U	**0.20**	**0.12**	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mercury	mg/L	0.1 U ht	0.001 U	0.1 U ht	0.1 U ht	0.1 U ht	0.001 U	0.1 U ht	0.002 U	0.002	0.001 U	**0.001**	0.001 U	**0.001**	**0.002**	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Selenium	mg/L	1 U	**0.003**	1 U	1 U	1 U	0.002 U	1 U	0.002 U	0.002 U	0.002 U	**0.002**	0.002 U	0.002 U	**0.004**	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Silver	mg/L	1 U	0.005 U	1 U	1 U	1 U	0.005 U	1 U	0.01 U	0.01 U	0.01 U	**0.01**	0.01 U	0.01 U	**0.08**	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Zinc	mg/L	----	**8.3**	----	----	----	**7.4**	----	**78**	**16**	**16**	**2.20**	**7.70**	**23**	**605**	----	----	----	----	----	----	----	----	----	----	----	----	----	----

TableA-6 - Stockpile Data Summary
Maralco Property - Kent, WA

Sample ID:		BD-18	TC-1	TC-2	TC-3	TC-4	TC-5	HA-2-9.5	Composite 1	Composite 2	Composite 3	Composite 4	DP-1-1'	DP-2-3'	DP-3-3'	DP-4-3'	B-1-S	B-1-S DUP	B-1-D	B-2-S	B-2-D	B-3-S	B-3-D	B-4-S	B-4-M	B-4-D	B-5-S	B-5-D	B-6-S	B-6-M	B-7-S	B-7-M	B-7-M DUP	B-7-D	B-8-S	B-8-M
Date:		1/1/90	9/11/90	9/11/90	9/11/90	9/11/90	9/11/90	7/6/90	7/6/00	7/6/00	7/6/00	7/6/00	2/4/03	2/4/03	2/4/03	2/4/03	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	10/20/05	10/20/05	10/20/05	10/20/05	10/20/05	10/20/05	10/19/05	10/19/05
Source Report:								*Black Dross Pile Characterization, URS 2000*					*Draft RI/FS, EMR 2003*				*Dross Sampling and Waste Determination, URS 2006*																			
Material Pile:		Outdoor	Presumably Black Dross					Outdoor Black Dross					Outdoor			Outdoor	Outdoor												Outdoor							
		Black Dross	For TCLP only during Pilot Plant										Black Dross			Washed Oxides	Black Dross												Black Dross							
pH	S.U.	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Total Sulfide	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Fluoride	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Potassium	mg/kg	**21,700**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**38,000**	**45,300**	**23,600**	**42,600**	**38,200**	**4,110**	**6,260**	**7,210**	**6,850**	**12,000**	**32,200**	**47,800**	**112,000**	**108,000**	**120,000**	**140,000**	**142,000**	**123,000**	**20,900**	**101,000**
Chloride	mg/kg	**81**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5.81 UJ	**209 J**	**14**	**523**	**32.9**	**21.4**	**106**	**11.6**	**39.7**	**16.4**	**6,550**	**104,000**	**283,000**	**213,000**	**169,000**	**276,000**	**261,000**	**258,000**	**781**	**176,000**
Ammonia	mg/kg	**64**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6.73 U	4.33 U	8.15 U	5.69 U	7.10 U	6.75 U	3.74 U	6.47 U	5.38 U	4.37 U	4.75 U	**15.3**	**88.3 J**	**280 J**	**261 J**	**449**	**336**	**276 J**	**4.87**	**113**
Kjeldahl Nitrogen	mg/kg	**658**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cyanide	mg/kg	**1.43**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Calcium	mg/kg	**1,000**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Metals - Method SW6010/6020																																				
Aluminum	mg/kg	**181,000**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Boron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Magnesium	mg/kg	**45,000**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Sodium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**23,600**	**24,700**	**20,900**	**27,200**	**26,200**	**4,590**	**4,500**	**7,200**	**7,240**	**8,550**	**18,800**	**41,500**	**119,000**	**81,300**	**74,900**	**101,000**	**108,000**	**116,000**	**12,100**	**67,500**
Strontium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Titanium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Metals - Method SW6010/6020																																				
Antimony	mg/kg	----	----	----	----	----	----						----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Arsenic	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Barium	mg/kg	**289**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Beryllium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cadmium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Chromium	mg/kg	**172**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cobalt	mg/kg	----						----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Copper	mg/kg	**1,100**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2,180 J**	**1,870 J**	**1,000**	**4,760**	**2,740**	**1,090**	**2,480**	**2,320**	**5,730**	**1,770**	**1,520**	**2,470**	**797**	**1,160**	**864**	**1,320 J**	**2,460 J**	**535**	**1,470**	**1,220**
Iron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lead	mg/kg	**168**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Manganese	mg/kg	**1,100**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mercury	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Nickel	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**48.2 J**	**60.6 J**	**35.2**	**142**	**67.2**	**34.8**	**100**	**72.8**	**110**	**45.5**	**39**	**74.6**	**37.8**	**32.5**	**26.7**	**27.1**	**24.7**	**16.8**	**51.5**	**35.3**
Selenium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Silver	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Thallium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Vanadium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Zinc	mg/kg	**864**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**3,520 J**	**1,500 J**	**767**	**4,250**	**1,780**	**529**	**1,670**	**1,360**	**2,210**	**846**	**700**	**1,180**	**865**	**780**	**609**	**696 J**	**1,000 J**	**524**	**882**	**1830**
TCLP Metals - Method SW6020, 1311													Metals - Method 7030/7020/7061																							
Aluminum	mg/L	----	----	----	----	----	----	----	----	----	----	----	**3,000**	**1,400**	**2,000**	**2,300**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Arsenic	mg/L	----	0.2 U	----	0.2 U	----	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	ND	ND	ND	ND	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Barium	mg/L	----	1.0 U	----	1.0 U	----	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	----	----	----	----	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Cadmium	mg/L	----	0.05 U	----	0.05 U	----	0.05 U	0.005 U	0.005 U	**0.000711**	**0.00651**	0.005 U	ND	ND	ND	ND	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Chromium	mg/L	----	0.1 U	----	0.1 U	----	0.1 U	0.001 U	**0.012**	**0.0173**	**0.0196**	**0.0212**	----	----	----	----	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Cr(VI)	mg/L	----	U	----	U	**0.087**	**0.092**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Copper	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lead	mg/L	----	**0.2**	----	0.1 U	----	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	----	----	----	----	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Mercury	mg/L	----	0.001 U	----	0.001 U	----	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	----	----	----	----	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U
Selenium	mg/L	----	0.05 U	----	0.05 U	----	0.05 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	----	----	----	----	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Silver	mg/L	----	**0.07**	----	0.05 U	----	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	----	----	----	----	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Zinc	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

TableA-6 - Stockpile Data Summary
Maralco Property - Kent, WA

Sample ID:		B-8-D	B-9-S	B-9-M	B-10-S	B-10-M	B-11-S	B-11-M	B-12-S	B-12-M	B-12-D	B-13-S	B-13-D	B-14-S	B-14-D	B-15-S	B-15-D	B-15-D DUP	B-16-S	B-16-M	B-16-D	B-17-S	B-17-M	B-17-D	B-18-S	COMP-1	COMP-2	COMP-3	COMP-4	COMP-5	COMP-6	COMP-7
Date:		10/19/05	10/20/05	10/20/05	10/20/05	10/20/05	10/20/05	10/20/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/21/05	10/19/05	10/19/05	10/20/05	10/20/05	10/20/05	10/21/05	10/21/05
Source Report:			*Dross Sampling and Waste Determination, URS 2006*																							*Dross Sampling and Waste Determination, URS 2006*						
Material Pile:							Outdoor Black Dross												Outdoor Black Dross							Outdoor Black Dross						
																										B-1, B-2, B-3	B-4, B-5	B-6, B-7	B-8, B-10	B-9, B-11	B-12, B-13, B-14	B-15, B16, B17
pH	S.U.	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**9.31 J**	**8.81 J**	**8.73**	**9.00**	**8.68**	**9.25 J**	**9.08 J**
Total Sulfide	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	56.1 U	58.5 U	23.2 U	28.1	24.8 U	27.2 U	**28.0**
Fluoride	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Potassium	mg/kg	**159,000**	**67,500**	**125,000**	**117,000**	**110,000**	**23,700**	**86,900**	**29,600**	**31,600**	**128,000**	**31,400**	**114,000**	**27,100**	**83,500**	**90,400**	**138,000**	**119,000**	**145,000**	**130,000**	**90,500**	**102,000**	**122,000**	**84,200**	**13,700**	----	----	----	----	----	----	----
Chloride	mg/kg	**186,000**	**152,000**	**209,000**	**243,000**	**221,000**	**149**	**124,000**	**211**	**3,860**	**101,000**	**36,900**	**106,000**	**157,000**	**107,000**	**139,000**	**167,000**	**206,000**	**196,000**	**259,000**	**163,000**	**167,000**	**213,000**	**136,000**	**86.8**	----	----	----	----	----	----	----
Ammonia	mg/kg	**214**	**223 J**	**300 J**	**104 J**	**107 J**	7.04 UJ	**54.3 J**	6.44 UJ	**138 J**	**243 J**	**142 J**	**309 J**	**129 J**	**325 J**	**216 J**	**334**	**322**	**84.4**	**174**	**252**	**242**	**288**	**339**	6.28 U	----	----	----	----	----	----	----
Kjeldahl Nitrogen	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cyanide	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**1.16**	**0.74**	0.580 U	0.574 U	0.624 U	0.657 U	0.604 U
Calcium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Metals - Method SW6010/6020																																
Aluminum	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Boron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Magnesium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Sodium	mg/kg	**44,000**	**75,000**	**108,000**	**86,700**	**97,000**	**16,400**	**62,900**	**17,100**	**15,100**	**38,400**	**19,200**	**42,000**	**15,000**	**43,100**	**35,100**	**59,200**	**72,200**	**49,200**	**107,000**	**75,400**	**70,200**	**84,900**	**53,100**	**6,950**	----	----	----	----	----	----	----
Strontium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Titanium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Metals - Method SW6010/6020																																
Antimony	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Arsenic	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Barium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Beryllium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cadmium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Chromium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cobalt	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Copper	mg/kg	**1,470**	**1,200**	**876**	**1,270**	**428**	**3,030**	**1,270**	**3,210**	**1,930**	**2,950**	**1,360**	**1,340**	**1,490**	**1,670**	**1,660**	**1,400**	**1,620**	**918**	**1,240**	**1,090**	**1,030**	**766**	**9,610**	**2,010**	----	----	----	----	----	----	----
Iron	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lead	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Manganese	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mercury	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Nickel	mg/kg	**44.4**	**37.8**	**33.3**	**47.5**	**22.4**	**98.1**	**36.1**	**80.2**	**57.9**	**145**	**40.9**	**64**	**55.9**	**52.8**	**40.6**	**49.6**	**38.3**	**27.9**	**28**	**45.7**	**35.8**	**27**	**109**	**56.6**	----	----	----	----	----	----	----
Selenium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Silver	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Thallium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Vanadium	mg/kg	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Zinc	mg/kg	**885**	**761**	**589**	**931**	**356**	**3,040**	**1,200**	**3,470**	**1,650**	**2,150**	**934**	**1,400**	**1,000**	**1,400**	**1,270**	**1,200 J**	**1,850 J**	**739**	**584**	**858**	**735**	**661**	**6,730**	**1,580**	----	----	----	----	----	----	----
TCLP Metals - Method SW6020, 1311																																
Aluminum	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Arsenic	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	----	----	----	----	----	----	----
Barium	mg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	----	----	----	----	----	----	----
Cadmium	mg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	----	----	----	----	----	----	----
Chromium	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	----	----	----	----	----	----	----
Cr(VI)	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Copper	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lead	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	----	----	----	----	----	----	----
Mercury	mg/L	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	----	----	----	----	----	----	----
Selenium	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	----	----	----	----	----	----	----
Silver	mg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	----	----	----	----	----	----	----
Zinc	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

NOTES:
Bold - analyte detected
---- not analyzed/no data
U - not detected at listed reporting limit
NA - not available or not applicable; insufficient results to calculate
ND - not detected (reporting limit not available)
J - laboratory estimated value
ht - Laboratory analysis performed outside the method holding time.

Table A-7 - Washed Oxide Stockpile Testing Results
Maralco Property - Kent, WA

Parameter	Units	PILE-A	PILE-E	PILE-OUTDOOR-WASHED
Date		11/30/2021	11/30/2021	11/30/2021
Physical Tests (Soil)				
Moisture	%	22.4	8.7	50.2
Metals (Soil)				
Aluminum (Al)	mg/kg	151,000	144,000	110,000
Antimony (Sb)	mg/kg	21	18	47
Arsenic (As)	mg/kg	8	7	7
Barium (Ba)	mg/kg	115	112	217
Beryllium (Be)	mg/kg	3	3	10
Bismuth (Bi)	mg/kg	10	11	17
Cadmium (Cd)	mg/kg	4.4	4.3	5.5
Calcium (Ca)	mg/kg	11,600	11,100	13,800
Chromium (Cr)	mg/kg	231	214	296
Cobalt (Co)	mg/kg	4	4	5
Copper (Cu)	mg/kg	2,340	2,340	2,030
Iron (Fe)	mg/kg	9,900	10,200	6,600
Lead (Pb)	mg/kg	165	163	169
Lithium (Li)	mg/kg	52	47	196
Magnesium (Mg)	mg/kg	20,100	19,200	31,700
Manganese (Mn)	mg/kg	1,340	1,280	840
Mercury (Hg)	mg/kg	<0.5	<0.5	<0.5
Molybdenum (Mo)	mg/kg	<9.9	<9.6	<9.8
Nickel (Ni)	mg/kg	67	69	85
Phosphorus (P)	mg/kg	290	240	250
Selenium (Se)	mg/kg	<3	<3	<3
Silver (Ag)	mg/kg	1	1	2
Strontium (Sr)	mg/kg	355	300	499
Sulfur (S)	mg/kg	400	400	400
Tellurium (Te)	mg/kg	7.55	6.14	7.24
Thallium (Tl)	mg/kg	<0.5	<0.5	<0.5
Tin (Sn)	mg/kg	43.8	44.2	47.8
Titanium (Ti)	mg/kg	2,590	2,560	3,550
Tungsten (W)	mg/kg	<5	<5	5
Uranium (U)	mg/kg	<5	<5	<5
Vanadium (V)	mg/kg	199	197	158
Zinc (Zn)	mg/kg	1,950	1,860	1,670
Hg + Cd + Tl	mg/kg	5.4	5.3	6.5
As+Ni+Co+Mn+Zn+Pb+Sb+V+Be	mg/kg	3757	3601	2991

NOTES:

% = percent

mg/kg - milligrams per kilogram

For < values, used numerical value regardless for summation purposes.

Appendix B
Permit Documents

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

July 3, 2024

Wayne Williams
Poe Construction
1519 W Valley Hwy N Ste 103
Auburn, WA 98001

RE: Coverage under the Construction Stormwater General Permit (CSWGP)

Permit number:	**WAR313438**
Site Name:	**Bridge Point Kent 180**
Location:	**7730 S 202nd St**
	Kent County: King
Disturbed Acres:	**12.1**

Dear Wayne Williams:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology's Construction Stormwater General Permit (CSWGP). This is your permit coverage letter. Your permit coverage is effective July 3, 2024.

Retain this letter as an official record of permit coverage for your site. You may keep your records in electronic format if you can easily access them from your construction site. You can get the CSWGP, permit forms, and other information at Ecology's CSWGP eCoverage Packet webpage[1]. Contact your Permit Administrator, listed below, if you want a copy of the CSWGP mailed to you. Please read the permit and contact Ecology if you have any questions.

Additional Monitoring
Please refer to the attached Administrative Order, number 22944, for additional monitoring requirements.

Electronic Discharge Monitoring Reports (WQWebDMR)
This permit requires you to submit monthly discharge monitoring reports (DMRs) for the full duration of permit coverage (from first full month of coverage to termination). Your first sampling and reporting period will be for the month of **August 2024** and your first DMR must be submitted by **September 15, 2024**. You must submit DMRs electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to Ecology's

[1] http://www.ecology.wa.gov/eCoverage-packet

WQWebPortal guidance webpage[2]. If you have questions, contact the portal staff at (360) 407-7097 (Olympia area), or (800) 633-6193/option 3, or email WQWebPortal@ecy.wa.gov.

Appeal Process
You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB). Appeals must be filed within 30 days of the date of receipt of this letter. Any appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2). For more information regarding your right to appeal, please reference Ecology's Focus Sheet: *Appeal of General Permit Coverage*[3].

Annual Permit Fees
RCW 90.48.465 requires Ecology to recover the costs of managing the permit program. Permit fees are invoiced annually until the permit is terminated. Termination conditions are described in the permit. For permit fee related questions, please contact the Water Quality Fee Unit at wqfeeunit@ecy.wa.gov or (800) 633-6193, Option 2. You can also visit Water Quality Permit Fees Webpage[4] for more information.

Ecology Field Inspector Assistance
If you have questions regarding stormwater management at your construction site, please contact your Regional Inspector, Maria Zeman of Ecology's Northwest Regional Office in Shoreline at maria.zeman@ecy.wa.gov, or (425) 240-0409.

Questions or Additional Information
Ecology is here to help. Please review our Construction Stormwater General Permit webpage[5] for more information. If you have questions about the Construction Stormwater General Permit, please contact your Permit Administrator, Stacey Britton at stacey.britton@ecy.wa.gov or (360) 764-3727.

Sincerely,

Jeff Killelea, Manager
Permit and Technical Services Section
Water Quality Program

[2] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance
[3] https://apps.ecology.wa.gov/publications/summarypages/1710007.html
[4] https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-permits/Fees
[5] www.ecology.wa.gov/constructionstormwaterpermit

Construction Stormwater General Permit

Stormwater Pollution Prevention Plan (SWPPP)

for

Bridge Point Kent 180

Prepared for:

The Washington State Department of Ecology
Northwest Regional Office

Permittee / Owner	Developer	Operator / Contractor
Bridge Development Partners 10655 NE 4th St, Suite 500 San Fransisco, CA 57104	Bridge Development Partners 10655 NE 4th St, Suite 500 San Fransisco, CA 57104	Poe Construction 1519 W Valley Hwy Suite 103 Auburn, WA 98001

7730 S 202ND Street, Kent WA, 98032

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD by contractor	TBD	TBD

SWPPP Prepared By

Name	Organization	Contact Phone Number
Daniel K. Balmelli	Barghausen Consulting Engineers, Inc.	(425) 251-6222

SWPPP Preparation Date

April 7, 2022
Revised October 25, 2023 / December 15, 2023

Project Construction Dates

Activity / Phase	Start Date	End Date
Site Construction	Nov 2023	Dec 2024

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H. Engineering Calculations

List of Acronyms and Abbreviations

Acronym / Abbreviation	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
CO_2	Carbon Dioxide
CRO	Central Regional Office of the Department of Ecology
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERO	Eastern Regional Office of the Department of Ecology
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMEW	Stormwater Management Manual for Eastern Washington
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
SWRO	Southwest Regional Office of the Department of Ecology
TMDL	Total Maximum Daily Load
VFO	Vancouver Field Office of the Department of Ecology
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

1 Project Information

Project/Site Name: Bridge Point Kent 180
Street/Location: 7730 S 202nd Street, Kent WA, 98032
City: Kent State: WA Zip code: 98032
Subdivision: N/A
Receiving waterbody: Unnamed Tributary of Lower Mill Creek

1.1 Existing Conditions

Total acreage (including support activities such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage:	12.05
Disturbed acreage:	12.05
Existing structures:	2
Landscape topography:	The redevelopment project is part of a 12.05-acre site that is currently mostly undeveloped. The portion within this project that is developed includes an existing building with a paved asphalt section for access to the building. There is a wetland in site on the northeast of the site. The property line to the north of the proposed improvements has an elevation of approximately 30, while the south side of the redevelopment area has an elevation of approximately 30.
Drainage patterns:	The site currently drains northeast into the existing wetland that is on site, and discharges into unnamed tributary of lower Mill Creek.
Existing Vegetation:	The eastern have of the site is currently undisturbed with extensive vegetation. The western half of the site has limited vegetation as it is mostly a warehouse, parking surfaces, and stabilized soils from the cleanup action completed in November 2023
Critical Areas: (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes):	There is a wetland to the northeast of the project.

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: Mill Creek is listed as a category 5 waterbody, listed for bioassessment

Figure A shows the estimated extent of contaminated soil on site. Table 1 includes a list of suspected and/or known contaminants associated with the construction activity.

Table 1 – Summary of Site Pollutant Constituents

Constituent (Pollutant)	Location	Depth	Concentration
Hydraulic Fluid and Fuel	Spill from equipment maintenance	Surface	
Arsenic	soil/groundwater	surface/subsurface	>7.3 mg/kg/>8.0 ug/L
Zinc	groundwater	subsurface	> 100 ug/L
Iron	groundwater	Surface/subsurface	>56,000 mg/kg/1000 ug/L
Diesel Range Oil	groundwater	subsurface	3000 ug/L
Chloride	groundwater	subsurface	230 mg/L
Fluoride	groundwater	subsurface	0.96 mg/L
Aluminum	soil	surface/subsurface	>80,000 mg/kg
Carcinogenic Polycyclic aromatic hydrocarbons	soil	surface/subsurface	>0.1 mg/kg
Nitrate-Nitrogen	groundwater	subsurface	10 mg/L
Ammonia-Nitrogen	groundwater	subsurface	6.11 mg/L

1.2 Proposed Construction Activities

Description of site development (example: subdivision):
The proposed conditions for this site will include one commercial building with asphalt parking.

Description of construction activities (example: site preparation, demolition, excavation):

The proposed project includes the construction of a new building of approximately 178,174 square feet, installing approximately 146,048 square feet of asphalt pavement. Work includes the demolition of all existing buildings and surface features. The entire site will be raised approximately 4 to 5 feet above existing grade. Very little excavation will be completed, limited trenching will be completed for utilities and stormwater improvements. The proposed stormwater system to be installed includes a stormwater conveyance system that discharges to a new concrete storm vault.

Description of site drainage including flow from and onto adjacent properties. Must be consistent with Site Map in Appendix A:

The site currently drains to an existing wetland on the northeast side of the property, which drains to unnamed tributary of Mill Creek. During construction a temporary sediment pond will be used to capture water from the western half of the site. The water will discharge through a chitosan-enhanced sand filtration (CESF) treatment system prior to discharging into the eastern half of the property. The eastern half of the property will be converted to a permeant wetland which will filter water prior to drainage to the unnamed tributary of Mill Creek.

In the fall of 2023, the majority of the above ground waste piles were removed from the site. A small amount of contaminated soil remains on the property, shown on attached Figure A. As a contingent measure, water removed from the ditches prior to or during excavation will be sampled and, if results indicate that treatment beyond CESF is required, the water will be sent to a commercial facility for disposal or to sanitary sewer under a King County Industrial Wastewater discharge authorization. A permit for discharge to King County was submitted on November 19, 2023.

The existing sites surrounding the east and west sides of the project have conveyance systems in place, so there is no runoff expected to enter this site. At the south end of the property, an existing culvert collects stormwater for discharge through the existing site ditches. During construction the culvert will be extended and stormwater will be conveyed to the western portion of the site to the future wetland mitigation area, outside of the construction area, shown on the Site Map.

Description of final stabilization (example: extent of revegetation, paving, landscaping):
After construction, the site will be 178,174 sf of new building and 146,048 sf of pavement. The remainder of the property will be landscaped.

Contaminated Site Information:

Proposed activities regarding contaminated soils or groundwater (example: on-site treatment system, authorized sanitary sewer discharge):

With the construction activities of this site, contaminated groundwater is not anticipated to be encountered, as the subsurface disturbance is minimal. If contaminated groundwater is encountered, the groundwater will be pumped to a Baker Tank where it will be treated and discharged to King County's water treatment plant through a construction discharge permit. A King County discharge permit application was submitted on November 20, 2023.

. See additional contaminated soil information included with this permit.

CONTAMINATED SOILS

Site Background

On November 29, 2023 an interim action cleanup was conducted by the Owner with oversight by Ecology to address surface waste piles from past operations. Ecology approved the cleanup action on July 31, 2023, and work was completed under the voluntary cleanup program (VCP NW3339, Ecology Project Manager Kim Vick). Cleanup actions included removing approximately 35,400 tons of stockpiled waste that was generated between 1980 and 1986 by the aluminum smelter facility that operated on the property. The waste is referred to as 'dross' in this document and includes byproducts of the secondary aluminum smelting process which contain aluminum oxide and other compounds. All waste piles were removed from the property and disposed at a permitted Subtitle D offsite landfill. Additional investigation and cleanup will occur under an Agreed Order that has been negotiated and will be out for public review between October 23 and November 21, 2023.

Multiple subsurface environmental investigations have occurred at the property. Releases of the following hazardous substances have been confirmed: (1) metals in soil near the exterior dross piles and/or in groundwater; (2) diesel petroleum contamination in soil and groundwater from a former UST and pump that were removed in 1995; (3) chloride, fluoride, and ammonia in groundwater; and (4) metals in sediments in the drainage ditches. Table 1 includes a summary of constituents detected at the property.

Table 1: Summary of Site Pollutants

Constituent (Pollutant)	Location	Depth	Concentration (Soil/Groundwater)
Arsenic	soil/groundwater	surface/subsurface	>7.3 mg/kg/>8.0 ug/L
Aluminum	soil	surface/subsurface	>80,000 mg/kg
Zinc	groundwater	subsurface	> 100 ug/L
Iron	soil/groundwater	subsurface	>56,000 mg/kg/1000 ug/L
Carcinogenic Polycyclic aromatic hydrocarbons	soil	surface/subsurface	>0.1 mg/kg

Diesel Range Oil	groundwater	subsurface	3000 ug/L
Chloride	groundwater	subsurface	230 mg/L
Fluoride	groundwater	subsurface	0.96 mg/L
Nitrate-Nitrogen	groundwater	subsurface	10 mg/L
Ammonia-Nitrogen	groundwater	subsurface	6.11 mg/L

Notes
mg/kg - milligrams per kilogram
ug/g - micrograms per gram
mg/kg - milligrams per kilogram

Historical reports and correspondence can be obtained and reviewed at https://secure-web.cisco.com/1CJWNoB2KoX7igWPNQUCixEI-iKV7PLX_3Q2QrVN8OEop1nS4zEu0vXfzX1bmcGisCGMJguyxVv_4UIy1fv3n-dDQZo61iYxrmZGsjQCDkoTt-jZGqlZ0522_1yo-YQ0F55OTY2AlYy-Lo_3R8vhzJG3kcBnp1LQGiQlfS28AYWNeqnBMfX_MHG-oo3OvKc3lSx2jSUV2uLENYYN9pzM3cepcDsNKpfVO2wGfjc8iFegsQF8aYrsPnkka1l64PdI1D_aEaPDMBflgrCJ0lPHfBhYLx4frg0CVBoK_tzuZYZkKi_uJ9CiMMu4e236mzW8BfnaH2DmScWguWPuHa3sKzKOgu7bdiOWt5XnwzBBqbiSfIRCYIwxiGFQNwrBOd0en/https%3A%2F%2Fapps.ecology.wa.gov%2Fcleanupsearch%2Fsite%2F5055%23site-documents

Though the extent of contamination is generally known and is documented on the attached figure, it is possible that unforeseen contamination may be uncovered during site work. In the event of an inadvertent discovery of new contamination, the suspect material will be treated as contaminated. If contamination does not pose a threat to the environment (i.e. it is not an active spill or leak) the area will be contained and the Ecology Toxics Cleanup Program manager will be notified and a plan will be developed with Toxics Cleanup Program to address the additional contamination. If there is an imminent threat to the environment from a spill or leak, all project work in that area will stop immediately, the Ecology Toxics Cleanup Program manager will be notified, and a plan will be developed with the Toxics Cleanup Program to address the contamination. The spill or release will be documented through Ecology's Environmental Report Tracking System (ERTS) by calling 1-800-OILS-911.

BMPs to be included in the project SWPPP to address sediment transport and possible pollutant migration include the following:

1. Stabilized Construction Entrance (BMP C105)
2. Wheel Wash (BMP C106)
3. Construction Road/Parking Area Stabilization (BMP C107)
4. Silt Fence (BMP C233)
5. Temporary and Permanent Seeding (BMP C120)
6. Mulching (BMP C121)
7. Dust Control (BMP C140)
8. Storm Drain Inlet Protection (BMP C220)
9. Sawcutting and Surfacing Pollution Prevention (C 152)
10. Sediment Pond (Temporary; C241)
11. Concrete Handling (BMP C151)

The environmental consultant providing oversight for this project is: Grant Hainsworth, P.E., CRETE Consulting Inc., PC.,253-797-6323, grant.hainsworth@creteconsulting.com

2 Construction Stormwater Best Management Practices (BMPs)

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e., hand-written notes and deletions). Update the SWPPP when the CESCL has noted a deficiency in BMPs or deviation from original design.

2.1 The 13 Elements

2.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. Areas that are to be preserved, as well as all sensitive areas and their buffers, shall be clearly delineated, both in the field and on the plans. A silt fence will be installed around the perimeter of the project site to mark the limits of construction as well as protect surrounding properties from any possible sediment laden runoff. As this site has contaminated soils present, the existing topsoils will be left in place with imported clean fill placed on top.

List and describe BMPs:

- High Visibility Plastic or Metal Fence (BMP C103)

Installation Schedules: TBD

Inspection and Maintenance plan:

Silt Fence Maintenance

- Repair any damage immediately.
- Intercept and convey all evident concentrated flows uphill of the silt fence to a sediment pond.
- Check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence or remove the trapped sediment.
- Remove sediment deposits when the deposit reaches approximately one-third the height of the silt fence, or install a second silt fence.
- Replace filter fabric that has deteriorated due to ultraviolet breakdown.

Responsible Staff: Contractor/CESL

2.1.2 Element 2: Establish Construction Access

Construction access or activities occurring on unpaved areas will be minimized, yet where necessary, access points will be stabilized to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning will be employed to prevent sediment from entering state waters. All wash wastewater will be controlled on site. All wash wastewater shall be controlled on site. The specific BMPs related to establishing construction access that may be used on this project include:
1. Stabilized Construction Entrance (BMP C105)
2. Wheel Wash (BMP C106) (this BMP will be used if non dedicated site vehicle wheels come into contact with contaminated soils),
3. Construction Road/Parking Area Stabilization (BMP C107)
No alternate BMPs are proposed for construction.
Installation Schedules: These BMPs will be installed prior to the start of any soil disturbance work; work is currently scheduled to start on TBD.
Inspection and Maintenance plan: Site inspection will occur in all areas disturbed by construction activities. The site inspector will evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges. Inspections will occur based on the details provided in Section 4.
Responsible Staff: A Certified Erosion and Sediment Control Lead will complete the inspections. Staff TBD.

List and describe BMPs: N/A

Installation Schedules: TBD

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Proposed updates to this section include:
Construction access or activities occurring on unpaved areas will be minimized, yet where necessary, access points will be stabilized to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning will be employed to prevent sediment from entering state waters. All wash wastewater will be controlled on site. All wash wastewater shall be controlled on site. The specific BMPs related to establishing construction access that may be used on this project include:
1. Stabilized Construction Entrance (BMP C105)
2. Wheel Wash (BMP C106) (this BMP will be used if non dedicated site vehicle wheels come into contact with contaminated soils),
3. Construction Road/Parking Area Stabilization (BMP C107)
No alternate BMPs are proposed for construction.
Installation Schedules: These BMPs will be installed prior to the start of any soil disturbance work; work is currently scheduled to start on TBD.
Inspection and Maintenance plan: Site inspection will occur in all areas disturbed by

construction activities. The site inspector will evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges. Inspections will occur based on the details provided in Section 4.
Responsible Staff: A Certified Erosion and Sediment Control Lead will complete the inspections. Staff TBD.

2.1.3 Element 3: Control Flow Rates

In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site will be controlled by construction of a temporary sediment pond and a temporary sediment trap as one of the first items of construction as well as a silt fence around the property boundary. Stormwater during construction will be captured through v-ditches with rock check dams in order to control the flow of stormwater runoff before reaching the sediment pond. The sediment pond is located at low points on the site with adequate surface area for sediment settlement per the DOE requirements from BMP and C241. Because the site has been designed to minimize cut into the contaminated soils on site, it is less of a concern that contaminated soils will be tracked offsite.

Detention facilities must be functioning property before construction of site improvements.

Will you construct stormwater retention and/or detention facilities?
☒ Yes ☐ No

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?
☐ Yes ☒ No
List and describe BMPs: Sediment Pond (Temporary) BMP C241

Installation Schedules: TBD

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

2.1.4 Element 4: Install Sediment Controls

All stormwater runoff from disturbed areas shall pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to the downstream drainage course. Constructing the sediment control ponds and traps is one of the first steps of grading and must be done before other land disturbing activities take place. Rock check dams and v-ditches will be used to convey stormwater runoff into the sediment pond and sediment trap to settle out sediment as well. Infiltration is not feasible for stormwater discharge from this site, as contaminated soils are present below ground. There are no juvenile Salmonids attempting to enter off-channel areas or drainages within the vicinity. The combination of a sediment trap and pond alone are expected to be adequate for sediment control on the site because most of the site work will not cut into existing contaminated soils. The surface area requirements for the TESC pond and trap are met with the designed TESC plan and it is not expected that further treatment or other sediment controlling measures are necessary.

However, if the proposed sediment controls are ineffective as determined by the CESCL, they will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix B.

List and describe BMPs:

- Silt Fence (BMP C233)

Installation Schedules: TBD

Inspection and Maintenance plan:

Silt Fence Maintenance

- Repair any damage immediately.
- Intercept and convey all evident concentrated flows uphill of the silt fence to a sediment pond.
- Check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence or remove the trapped sediment.
- Remove sediment deposits when the deposit reaches approximately one-third the height of the silt fence, or install a second silt fence.
- Replace filter fabric that has deteriorated due to ultraviolet breakdown.

Responsible Staff: Contractor/CESL

2.1.5 Element 5: Stabilize Soils

Exposed and unworked soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. Temporary seeding shall occur on all areas to remain unworked pursuant to below. In general, cut and fill slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels. To the northwest of the site, there is an area that will be used for stockpiling any contaminated soils uncovered during the project. These stockpiles will be covered with plastic sheeting while being stored and waiting for testing to determine any present contaminants before disposal or reuse depending on the testing outcome. To minimize the amount of soil exposed through the life of the project, grading will be completed within a reasonable time frame after the preloading of the building footprints is completed. To minimize soil compaction, a construction entrance will be used as well as keeping heavy equipment and machinery off unpaved areas as much as possible.

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates: Start date: July 2022 End date: July 2024

Will you construct during the wet season?
☒ Yes ☐ No

List and describe BMPs:

- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)

Installation Schedules: TBD

Inspection and Maintenance plan: Temporary and Permanent Seeding Maintenance

- Reseed any seeded areas that fail to establish at least 80 percent cover (100 percent cover for areas that receive sheet or concentrated flows). If reseeding is ineffective, use an alternate method such as sodding, mulching, or nets/blankets. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the local authority when sensitive areas would otherwise be protected.
- Reseed and protect by mulch any areas that experience erosion after achieving adequate cover. Reseed and protect by mulch any eroded area.
- Supply seeded areas with adequate moisture, but do not water to the extent that it causes runoff.

Mulching Maintenance

- The thickness of the cover must be maintained.
- Any areas that experience erosion shall be remulched and/or protected with a net or blanket. If the erosion problem is drainage related, then the problem shall be fixed and the eroded area remulched.

Dust Control Maintenance

- Respray area as necessary to keep dust to a minimum.

Responsible Staff: Contractor/CESL

2.1.6 Element 6: Protect Slopes

All cut and fill slopes will be designed, constructed, and protected in a manner that minimizes erosion. It is required that any temporary pipe slope drains must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. For modeling the condition with the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas have been modeled as “landscaped area”. Scouring will be reduced by using v-ditches with rock check dams to convey stormwater to the sediment pond and trap on site. However, if the proposed BMPs to protect slopes are ineffective as determined by the CESCL, they will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix B.

Will steep slopes be present at the site during construction?
☒ Yes ☐ No

List and describe BMPs:

- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)

Installation Schedules: N/A

Inspection and Maintenance plan: Temporary and Permanent Seeding Maintenance

- Reseed any seeded areas that fail to establish at least 80 percent cover (100 percent cover for areas that receive sheet or concentrated flows). If reseeding is ineffective, use an alternate method such as sodding, mulching, or nets/blankets. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the local authority when sensitive areas would otherwise be protected.
- Reseed and protect by mulch any areas that experience erosion after achieving adequate cover. Reseed and protect by mulch any eroded area.
- Supply seeded areas with adequate moisture, but do not water to the extent that it causes runoff.

Mulching Maintenance

- The thickness of the cover must be maintained.

- Any areas that experience erosion shall be remulched and/or protected with a net or blanket. If the erosion problem is drainage related, then the problem shall be fixed and the eroded area remulched.

Dust Control Maintenance

- Respray area as necessary to keep dust to a minimum.

Responsible Staff: N/A

2.1.7 Element 7: Protect Drain Inlets

All storm drain inlets and culverts made operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. However, the first priority is to keep all access roads clean of sediment and keep wash water separate from entering storm drains until treatment can be provided. Storm Drain Inlet Protection (BMP C220) will be implemented for all drainage inlets and culverts that could potentially be impacted by sediment-laden runoff on and near the project site. The temporary sediment pond and trap on site will function to settle out sediment particles before discharge to the existing storm system in order to prevent sediment from entering the system. If this is deemed ineffective by the CESCL, additional BMPs may be necessary, as listed in Appendix B. Inlet protection is the last component of a treatment train and protection of drain inlets include additional sediment and erosion control measures. Inlet protection devices will be cleaned (or removed and replaced), when sediment has filled the device by one third (1/3) or as specified by the manufacturer.

List and describe BMPs:

- Storm Drain Inlet Protection (BMP C220)

Installation Schedules: TBD

Inspection and Maintenance plan:

Storm Drain Inlet Protection Maintenance

- Inspect catch basin filters frequently, especially after storm events. Clean and replace clogged inserts. For systems with clogged stone filters: pull away the stones from the inlet and clean or replace. An alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.
- Do not wash sediment into storm drains while cleaning. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize as appropriate.
- Inlets to be inspected weekly and a minimum of daily during storm events

Responsible Staff: Contractor/CESL

2.1.8 Element 8: Stabilize Channels and Outlets

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts will be taken to prevent downstream erosion. For construction stormwater conveyance, v-ditches with rock check dams will be installed to stabilize channels. Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent streambanks, slopes, and downstream reaches shall be provided at the outlets of all conveyance systems.

Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches, will be installed at the outlets of all conveyance systems.

List and describe BMPs:

Check Dams (BMP 207)
Outlet Protection (riprap) (BMP C209)

Installation Schedules: TBD

Inspection and Maintenance plan: TBD

Responsible Staff: Contractor/CESL

2.1.9 Element 9: Control Pollutants

The following pollutants are anticipated to be present on-site and shown on Figure A:

Table 2 – Pollutants

Pollutant (List pollutants and source, if applicable)
Hydraulic fluid- May be present on site with construction equipment.
Diesel – May be present on site with construction equipment and may be present on site in groundwater from past surface sources
Motor Oil – May be present on site with construction equipment.
Metals (Arsenic, zinc, iron, aluminum) – may be present on site from the exterior dross piles and/or in groundwater
Carcinogenic Polycyclic aromatic hydrocarbons - may be present on site in soil from past surface sources
Chloride- may be present on site in groundwater from past surface sources
Fluoride- may be present on site in groundwater from past surface sources
Nitrate-Nitrogen- may be present on site in groundwater from past surface sources
Ammonia-Nitrogen- may be present on site in groundwater from past surface sources

Multiple subsurface environmental investigations have occurred at the property. Releases of the following hazardous substances have been confirmed: (1) metals in soil near the exterior dross piles and/or in groundwater; (2) diesel petroleum contamination in soil and groundwater from a former UST and pump that were removed in 1995; (3) chloride, fluoride, and ammonia in groundwater; and (4) metals in sediments in the drainage ditches. Table 1 includes a summary of constituents detected at the property.

As a contingent measure, water removed from the ditches prior to or during excavation will be sampled and, if results indicate that treatment beyond CESF is required, the water will be sent to a commercial facility for disposal or to sanitary sewer under a King County Industrial Wastewater discharge authorization. A permit for discharge to King County was submitted on November 19, 2023.

Known past industrial operations on the property have caused or contributed to the contamination at the Property. These sources are detailed in the interim action cleanup documents (Ecology VCP NW3339). Releases of the following hazardous substances have been confirmed: (1) metals in soil near the exterior dross piles and/or in groundwater; (2) diesel petroleum contamination in soil and groundwater from a former UST and pump that were removed in 1995; (3) chloride, fluoride, and ammonia in groundwater; and (4) metals in sediments in the drainage ditches.
Arsenic is the only pollutant located in surface soils, all other pollutants are located in the subsurface and are not expected to be disturb during activities associated with this construction project.

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean,

well organized, and free of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below. Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- All vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.
- On-site fueling tanks and petroleum product storage containers shall include secondary containment.
- Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
- In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.
- Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.

Demolition:

- Dust released from demolished sidewalks, buildings, or structures will be controlled using Dust Control measures (BMP C140).
- Storm drain inlets vulnerable to stormwater discharge carrying dust, soil, or debris will be protected using Storm Drain Inlet Protection (BMP C220 as described above for Element 7).
- Process water and slurry resulting from sawcutting and surfacing operations will be prevented from entering the waters of the State by implementing Sawcutting and Surfacing Pollution Prevention measures (BMP C152).

Concrete and grout:

- Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151).

List and describe BMPs:

- Concrete Handling (BMP C151)
- Stabilized Construction Entrance (BMP C105)
- Wheel Wash (BMP C106)
- Construction Road/Parking Area Stabilization (BMP C107)
- Silt Fence (BMP C233)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)

- Storm Drain Inlet Protection (BMP C220)
- Sawcutting and Surfacing Pollution Prevention (C152)
- Sediment Pond (Temporary; C241)

Installation Schedules: TBD

Inspection and Maintenance plan:

Concrete Handling Maintenance

- Check containers for holes in the liner daily during concrete pours and repair the same day.

Responsible Staff: Contractor/CESL

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?
☒ Yes ☐ No

In order to prevent spills and minimize risk, the following list should be applied

- Temporary storage area should be located away from vehicular traffic, near the construction entrance(s), and away from waterways or storm drains.
- Material Safety Data Sheets (MSDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers.
- Hazardous material storage on-site should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- During the wet weather season (Oct 1 – April 30), consider storing materials in a covered area.
- Materials should be stored in secondary containments, such as earthen dike, horse trough, or even a children's wading pool for non-reactive materials such as detergents, oil, grease, and paints. Small amounts of material may be secondarily contained in "bus boy" trays or concrete mixing trays.
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and, when possible, and within secondary containment.
- If drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids to reduce corrosion. Domed plastic covers are inexpensive and snap to the top of drums, preventing water from collecting.

Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall not be overfilled. Containers and drums shall be stored in temporary secondary containment facilities.

List and describe BMPs:

- Material Delivery, Storage and Containment (BMP C153)

Installation Schedules: TBD

Inspection and Maintenance plan: The spill kit should include, at a minimum:

- 1-Water Resistant Nylon Bag
- 3-Oil Absorbent Socks 3”x 4’
- 2-Oil Absorbent Socks 3”x 10’
- 12-Oil Absorbent Pads 17”x19”
- 1-Pair Splash Resistant Goggles
- 3-Pair Nitrile Gloves
- 10-Disposable Bags with Ties
- Instructions

Responsible Staff: Contractor/CESL

Will wheel wash or tire bath system BMPs be used during construction?
☒ Yes ☐ No

List and describe BMPs:

- Wheel Wash (BMP C106)

Installation Schedules: TBD

Inspection and Maintenance plan:

The wheel wash should start out the day with fresh water. The wash water should be changed a minimum of once per day. On large earthwork jobs where more than 10-20 trucks per hour are expected, the wash water will need to be changed more often.

Wheel wash or tire bath wastewater shall be discharged to a separate onsite treatment system, such as closed-loop recirculation or land application, or to the sanitary sewer with proper local sewer district approval.

Responsible Staff: Contractor/CESL

Will pH-modifying sources be present on-site?
☐ Yes ☒ No

Table 3 – pH-Modifying Sources

☒	None
☐	Bulk cement
☐	Cement kiln dust
☐	Fly ash
☐	Other cementitious materials
☐	New concrete washing or curing waters
☐	Waste streams generated from concrete grinding and sawing
☐	Exposed aggregate processes
☐	Dewatering concrete vaults

☐	Concrete pumping and mixer washout waters
☐	Recycled concrete
☐	Recycled concrete stockpiles
☐	Other (i.e., calcium lignosulfate) [please describe:]

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Concrete trucks must not be washed out onto the ground, or into storm drains, open ditches, streets, or streams. Excess concrete must not be dumped on-site, except in designated concrete washout areas with appropriate BMPs installed.

Will uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters?
☐ Yes ☒ No

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

2.1.10 Element 10: Control Dewatering

Dewatering is not anticipated to be required during the construction phase however this section is included for reference.

All dewatering water from open cut excavation, tunneling, foundation work, trench, or underground vaults shall be discharged into a controlled conveyance system prior to discharge to the downstream drainage course. Channels will be stabilized, per Element #8. Clean, non-turbid dewatering water will not be routed through stormwater sediment ponds, and will be discharged to systems tributary to the receiving waters of the State in a manner that does not cause erosion, flooding, or a violation of State water quality standards in the receiving water. Highly turbid dewatering water from soils known or suspected to be contaminated, or from use of construction equipment, will require additional monitoring and treatment as required for the specific pollutants based on the receiving waters into which the discharge is occurring. Such monitoring is the responsibility of the contractor. Because there are contaminated soils on site, any cut into these will be closely monitored and all cut soils will be stockpiled for testing before appropriate disposal or reuse. The dewatering water from excavation will be tested and treated if the testing shows contamination. If results indicate that treatment beyond CESF is required, the water will be sent to a commercial facility for disposal or to sanitary sewer under a King County Industrial Wastewater discharge authorization. A permit for discharge to King County was submitted on November 19, 2023.

However, the dewatering of soils known to be free of contamination will trigger BMPs to trap sediment and reduce turbidity. At a minimum, geotextile fabric socks/bags/cells will be used to filter this material.

If BMP C250: Construction Stormwater Chemical Treatment and BMP C251: Construction Stormwater Filtration are required for treatment, approval from Ecology is required prior,

Table 4 – Dewatering BMPs

☐	Infiltration
☐	Transport off-site in a vehicle (vacuum truck for legal disposal)
☒	Ecology-approved on-site chemical treatment or other suitable treatment technologies
☒	Sanitary or combined sewer discharge with local sewer district approval (last resort)
☐	Use of sedimentation bag with discharge to ditch or swale (small volumes of localized dewatering)

List and describe BMPs:

- Construction Stormwater Chemical Treatment (BMP C250)
- Construction Stormwater Filtration (BMP C251)

Installation Schedules: TBD

Inspection and Maintenance plan:

Construction Stormwater Chemical Treatment Maintenance

Monitoring: At a minimum, the following monitoring shall be conducted. Test results shall be recorded on a daily log kept on site. Additional testing may be required by the NPDES permit based on site conditions.

Operational Monitoring:

- Total volume treated and discharged.
- Flow must be continuously monitored and recorded at not greater than 15-minute intervals.
- Type and amount of chemical used for pH adjustment.
- Amount of polymer used for treatment.
- Settling time.

Compliance Monitoring:

- Influent and effluent pH, flocculent chemical concentration, and turbidity must be continuously monitored and recorded at not greater than 15-minute intervals. pH and turbidity of the receiving water.

Biomonitoring:

Treated stormwater must be non-toxic to aquatic organisms. Treated stormwater must be tested for aquatic toxicity or residual chemicals. Frequency of biomonitoring will be determined by Ecology.

Residual chemical tests must be approved by Ecology prior to their use.

If testing treated stormwater for aquatic toxicity, you must test for acute (lethal) toxicity. Bioassays shall be conducted by a laboratory accredited by Ecology, unless otherwise approved by Ecology. Acute toxicity tests shall be conducted per the CTAPE protocol.

Discharge Compliance: Prior to discharge, treated stormwater must be sampled and tested for compliance with pH, flocculent chemical concentration, and turbidity limits. These limits may be established by the Construction Stormwater General Permit or a site-specific discharge permit. Sampling and testing for other pollutants may also be necessary at some sites. pH must be within the range of 6.5 to 8.5 standard units and not cause a change in the pH of the receiving water of more than 0.2 standard units. Treated stormwater samples and measurements shall be taken from the discharge pipe or another location representative of the nature of the treated stormwater discharge. Samples used for determining compliance with the water quality standards in the receiving water shall not be taken from the treatment pond prior to decanting. Compliance with the water quality standards is determined in the receiving water.

Operator Training: Each contractor who intends to use chemical treatment shall be trained by an experienced contractor . Each site using chemical treatment must have an operator trained and certified by an organization approved by Ecology.

Standard BMPs: Surface stabilization BMPs should be implemented on site to prevent significant erosion. All sites shall use a truck wheel wash to prevent tracking of sediment off site.

Sediment Removal and Disposal:

- Sediment shall be removed from the storage or treatment cells as necessary. Typically, sediment removal is required at least once during a wet season and at the decommissioning of the cells. Sediment remaining in the cells between batches may enhance the settling process and reduce the required chemical dosage.
- Sediment that is known to be non-toxic may be incorporated into the site away from drainages.

Construction Stormwater Filtration Maintenance

Rapid sand filters typically have automatic backwash systems that are triggered by a pre-set pressure drop across the filter. If the backwash water volume is not large or substantially more turbid than the untreated stormwater stored in the holding pond or tank, backwash return to the untreated stormwater pond or tank may be appropriate. However, other means of treatment and disposal may be necessary.

- Screen, bag, and fiber filters must be cleaned and/or replaced when they become clogged.
- Sediment shall be removed from the storage and/or treatment ponds as necessary. Typically, sediment removal is required once or twice during a wet season and at the decommissioning of the ponds.

Responsible Staff: Contractor/CESL

2.1.11 Element 11: Maintain BMPs

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see *Volume II of the SWMMWW or Chapter 7 of the SWMMEW*).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any stormwater or non-stormwater discharge from the site. If the site becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment shall be stabilized on-site or removed. Disturbed soil resulting from removal of either BMPs or vegetation shall be permanently stabilized.

Additionally, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction shall be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed and the facility shall be returned to conditions specified in the construction documents.

2.1.12 Element 12: Manage the Project

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be taken into account.
- Inspection and monitoring:
    - Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
    - Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. Sampling locations are indicated on the Site Map. Sampling station(s) are located in accordance with applicable requirements of the CSWGP.
- Maintain an updated SWPPP.
    - The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

☒	Design the project to fit the existing topography, soils, and drainage patterns
☒	Emphasize erosion control rather than sediment control
☒	Minimize the extent and duration of the area exposed
☒	Keep runoff velocities low
☒	Retain sediment on-site
☒	Thoroughly monitor site and maintain all ESC measures
☒	Schedule major earthwork during the dry season
☐	Other (please describe)

Table 6 – BMP Implementation Schedule

Phase of Construction Project	Stormwater BMPs	Date	Wet/Dry Season
TBD			

2.1.13 Element 13: Protect Low Impact Development (LID) BMPs

Low Impact Developed (LID) BMPs are practices that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration integrated into project design. The idea behind these is to emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff. At this time, there are no LID BMPs in place, however the following shall apply in the event of additional LID BMPs added to the project:

- Permittees must protect all Bioretention and Rain Garden facilities from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden facilities. Restore the facilities to their fully functioning condition if they accumulate sediment during construction. Restoring the facility must include removal of sediment and any sediment-laden Bioretention/Rain Garden soils, and replacing the removed soils with soils meeting the design specification.
- Permittees must maintain the infiltration capabilities of Bioretention and Rain Garden facilities by protecting against compaction by construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.
- Permittees must control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements.
- Permittees must clean permeable pavements fouled with sediments or no longer passing an initial infiltration test using local stormwater manual methodology or the manufacturer's procedures.
- Permittees must keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

3 Pollution Prevention Team

Table 7 – Team Information

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	TBD	
Resident Engineer	Costa Philippides	(425) 251-6222
Emergency Ecology Contact	TBD	TBD
Emergency Permittee/ Owner Contact	TBD	TBD
Non-Emergency Owner Contact	TBD	TBD
Monitoring Personnel	TBD	TBD
Ecology Regional Office	Northwest Regional Office	425-649-7000

4 Monitoring and Sampling Requirements

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

File a blank form under Appendix D.

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this template.

4.1 Site Inspection

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

4.2 Stormwater Quality Sampling

4.2.1 Turbidity Sampling

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

☐	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
☒	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU **or** the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU **or** the transparency is 6 cm or less at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours.
    - **Northwest Region** (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000 or http://www.ecy.wa.gov/programs/spills/forms/nerts_online/NWRO_nerts_online.html
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.
4. Continue to sample discharges daily until one of the following is true:
    - Turbidity is 25 NTU (or lower).
    - Transparency is 33 cm (or greater).
    - Compliance with the water quality limit for turbidity is achieved.
        - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
        - 1% - 10% over background turbidity, if background is 50 NTU or greater
    - The discharge stops or is eliminated.

4.2.2 pH Sampling

pH monitoring is required for “Significant concrete work” (i.e., greater than 1000 cubic yards poured concrete over the life of the project). The use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD] or fly ash) also requires pH monitoring.

For significant concrete work, pH sampling will start the first day concrete is poured and continue until it is cured, typically three (3) weeks after the last pour.

For engineered soils and recycled concrete, pH sampling begins when engineered soils or recycled concrete are first exposed to precipitation and continues until the area is fully stabilized.

If the measured pH is 8.5 or greater, the following measures will be taken:

1. Prevent high pH water from entering storm sewer systems or surface water.
2. Adjust or neutralize the high pH water to the range of 6.5 to 8.5 su using appropriate technology such as carbon dioxide (CO_2) sparging (liquid or dry ice).
3. Written approval will be obtained from Ecology prior to the use of chemical treatment other than CO_2 sparging or dry ice.

Method for sampling pH:

Table 9 – pH Sampling Method

☒	pH meter
☐	pH test kit
☐	Wide range pH indicator paper

5 Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies

5.1 303(d) Listed Waterbodies

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

☐ Yes ☒ No

List the impairment(s):N/A

5.2 TMDL Waterbodies

Waste Load Allocation for CWSGP discharges: N/A

List and describe BMPs: N/A

Discharges to TMDL receiving waterbodies will meet in-stream water quality criteria at the point of discharge.

The Construction Stormwater General Permit Proposed New Discharge to an Impaired Water Body form is included in Appendix F.

6 Reporting and Record Keeping

6.1 Record Keeping

6.1.1 Site Log Book

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sample logs

6.1.2 Records Retention

Records will be retained during the life of the project and for a minimum of three (3) years following the termination of permit coverage in accordance with Special Condition S5.C of the CSWGP.

Permit documentation to be retained on-site:

- CSWGP
- Permit Coverage Letter
- SWPPP
- Site Log Book

Permit documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with Special Condition S5.G.2.b of the CSWGP.

6.1.3 Updating the SWPPP

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.
- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

6.2 Reporting

6.2.1 Discharge Monitoring Reports

Cumulative soil disturbance is one (1) acre or larger; therefore, Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period the DMR will be submitted as required, reporting "No Discharge". The DMR due date is fifteen (15) days following the end of each calendar month.

DMRs will be reported online through Ecology's WQWebDMR System.

6.2.2 Notification of Noncompliance

If any of the terms and conditions of the permit is not met, and the resulting noncompliance may cause a threat to human health or the environment, the following actions will be taken:

1. Ecology will be notified within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (Regional office numbers listed below).
2. Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. If applicable, sampling and analysis of any noncompliance will be repeated immediately and the results submitted to Ecology within five (5) days of becoming aware of the violation.
3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

Anytime turbidity sampling indicates turbidity is 250 NTUs or greater, or water transparency is 6 cm or less, the Ecology Regional office will be notified by phone within 24 hours of analysis as required by Special Condition S5.A of the CSWGP.

- **Northwest Region** at (425) 649-7000 for Island, King, Kitsap, San Juan, Skagit, Snohomish, or Whatcom County

Include the following information:

1. Your name and / Phone number
2. Permit number
3. City / County of project
4. Sample results
5. Date / Time of call
6. Date / Time of sample
7. Project name

In accordance with Special Condition S4.D.5.b of the CSWGP, the Ecology Regional office will be notified if chemical treatment other than CO_2 sparging is planned for adjustment of high pH water.

A. Site Map

B. BMP Detail

Please see following pages for appropriate BMP details.

Below is a list of Alternative BMPs the be used if the BMPs listed in the body of this document are deemed ineffective by the CESCL.

Element #1 - Mark Clearing Limits
BMP C101: Preserving Natural Vegetation
BMP C102: Buffer Zones
BMP C103: High Visibility Fence

Element #2 - Establish Construction Access
BMP C107: Construction Road/Parking Area Stabilization

Element #3 - Control Flow Rates
BMP C203: Water Bars
BMP C209: Outlet Protection
BMP C235: Wattles

Element #4 - Install Sediment Controls
BMP C231: Brush Barrier
BMP C232: Gravel Filter Berm
BMP C234: Vegetated Strip
BMP C235: Wattles
BMP C250: Construction Stormwater Chemical Treatment
BMP C251: Construction Stormwater Filtration
Other Proprietary Sediment Control Technologies

Element #5 - Stabilize Soils
BMP C122: Nets and Blankets
BMP C124: Sodding
BMP C125 Compost
BMP C126: Topsoiling
BMP C127: Polyacrylamide for Soil Erosion Protection
BMP C130: Surface Roughening
BMP C131: Gradient Terraces

Element #6 - Protect Slopes
BMP C121: Mulching
BMP C122: Nets and Blankets
BMP C131: Gradient Terraces
BMP C200: Interceptor Dike and Swale
BMP C201: Grass-Lined Channels
BMP C203: Water Bars
BMP C204: Pipe Slope Drains
BMP C205: Subsurface Drains
BMP C206: Level Spreader
BMP C208: Triangular Silt Dike (Geotextile-Encased Check Dam)

Element #7 - Protect Drain Inlets
BMP C220: Storm Drain Inlet Protection

Element #8 - Stabilize Channels and Outlets
BMP C122: Nets and Blankets
BMP C202: Channel Lining
BMP C209: Outlet Protection

Element #9 - Control Pollutants
BMP C152: Sawcutting and Surface Pollution Prevention
BMP C153: Material Delivery, Storage, Containment
BMP C154: Concrete Washout Area
BMP C250: Construction Stormwater Chemical Treatment
BMP C251: Construction Stormwater Filtration
BMP C252: High pH Neutralization Using Co_2
BMP C253: pH Control for High pH Water
Source Control BMPs As Appropriate

Element #10 - Control Dewatering
BMP C203: Water Bars
BMP C226: Vegetative Filtration

Element #11 - Maintain BMPs
BMP C150: Materials on Hand
BMP C160 Erosion and Sedimentation Control Lead

Element #12 - Manage the Project
BMP C150: Materials on Hand
BMP C160: Erosion and Sediment Control Lead
BMP C162: Scheduling

Element #13: Protect Low Impact Development
BMP C102: Buffer Zone
BMP C103: High Visibility Fence
BMP C200: Interceptor Dike and Swale
BMP C201: Grass-Lined Channels
BMP C207: Check Dams
BMP C208: Triangular Silt Dike (TSD) (Geotextile-Encased Check Dam)
BMP C231: Brush Barrier
BMP C233: Silt Fence
BMP C234: Vegetated Strip

C. Correspondence

Please see the following for any pertinent correspondence regarding this project.

D. Site Inspection Form

Please see the following pages for the site inspection form.

E. Construction Stormwater General Permit (CSWGP)

The CSWGP will be provided in the final SWPPP.

F. 303(d) List Waterbodies / TMDL Waterbodies Information

Please see the following pages for any pertinent information regarding 303(d) list waterbodies or TMDL waterbodies

G. Contaminated Site Information

Please see the following pages for information on site contamination

H. Engineering Calculations

Please see the following for calculations.

US Army Corps of Engineers
Seattle District

NATIONWIDE PERMIT 38
Terms and Conditions

2021 NWPs - Final 41; Effective Date: February 25, 2022

A. Description of Authorized Activities
B. U.S. Army Corps of Engineers (Corps) National General Conditions for All Final 41 NWPs
C. Seattle District Regional General Conditions
D. Seattle District Regional Specific Conditions for this Nationwide Permit (NWP)
E. 401 Water Quality Certification (401 WQC) for this NWP
F. Coastal Zone Management Consistency Response for this NWP

In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit (NWP) authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

38. Cleanup of Hazardous and Toxic Waste. Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Court ordered remedial action plans or related settlements are also authorized by this NWP. This NWP does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

Note: Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL 2021 NWPs - FINAL 41

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required,

upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated

critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those

tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory

mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements)

may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual

coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:
(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to

satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. SEATTLE DISTRICT REGIONAL GENERAL CONDITIONS: The following conditions apply to the 2021 NWPs - Final 41 NWPs for the Seattle District in Washington State, as applicable.

RGC 1, Project Drawings
Drawings must be submitted with pre-construction notification (PCN). Drawings must provide a clear understanding of the proposed project, and how waters of the United States will be affected. Drawings must be originals and not reduced copies of large-scale plans. Engineering drawings are not required. Existing and proposed site conditions (manmade and landscape features) must be drawn to scale.

RGC 2, Aquatic Resources Requiring Special Protection
A PCN is required for activities resulting in a loss of waters of the United States in wetlands in dunal systems along the Washington coast, mature forested wetlands, bogs and peatlands, aspen-dominated wetlands, alkali wetlands, vernal pools, camas prairie wetlands, estuarine wetlands, and wetlands in coastal lagoons.

RGC 3, New Bank Stabilization in Tidal Waters of Puget Sound
Activities involving new bank stabilization in tidal waters in Water Resource Inventory Areas (WRIAs) 8, 9, 10, 11 and 12 (within the areas identified on Figures 1a through 1e) cannot be authorized by NWP.

RGC 4, Commencement Bay
No permanent losses of wetlands or mudflats within the Commencement Bay Study Area may be authorized by any NWP (see Figure 2).

RGC 5, Bank Stabilization
All projects including new or maintenance bank stabilization activities in waters of the United States where salmonid species are present or could be present, requires PCN to the U.S. Army Corps of Engineers (Corps) (see NWP general condition 32).
For new bank stabilization projects only, the following must be submitted to the Corps:

a. The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.
b. The type and length of existing bank stabilization within 300 feet of the proposed project.
c. A description of current conditions and expected post-project conditions in the waterbody.
d. A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

In addition to a. through d., the results from any relevant geotechnical investigations can be submitted with the PCN if it describes current or expected conditions in the waterbody.

RGC 6, Crossings of Waters of the United States
Any project including installing, replacing, or modifying crossings of waters of the United States, such as culverts or bridges, requires submittal of a PCN to the U.S. Army Corps of Engineers (see NWP general condition 32).
If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, the project must apply the stream simulation design method from the Washington Department of Fish and Wildlife located in the *Water Crossing Design Guidelines* (2013), or a design method which provides passage at all life stages at all flows where the salmonid species would naturally seek passage. If the stream simulation design method is not applied for a culvert where salmonid species are present or could be present, the project proponent must provide a rationale in the PCN sufficient to establish one of the following:

a. The existence of extraordinary site conditions.
b. How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

Culverts installed under emergency authorization that do not meet the above design criteria will be required to meet the above design criteria to receive an after-the-fact nationwide permit verification.

RGC 7, Stream Loss

A PCN is required for all activities that result in the loss of any linear feet of streams.

RGC 8, Construction Boundaries
Permittees must clearly mark all construction area boundaries within waters of the United States before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.

RGC 9, ESA Reporting to NMFS
For any nationwide permit that may affect threatened or endangered species;
Incidents where any individuals of fish species, marine mammals and/or sea turtles listed by National Oceanic and Atmospheric Administration Fisheries, National Marine Fisheries Service (NMFS) under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the U.S. or structures or work in navigable waters of the U.S. authorized by this Nationwide Permit verification shall be reported to NMFS, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the Seattle District of the U.S. Army Corps of Engineers at (206) 764-3495. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure or some unnatural cause. The finder may be asked to carry out instructions provided by the NMFS to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

D. SEATTLE DISTRICT REGIONAL SPECIFIC CONDITIONS FOR THIS NWP:

NWP 38 Specific Regional Condition:
1. Non-government project proponents must submit a copy of court ordered remedial plans or related settlements with the pre-construction notification.

E. 401 WATER QUALITY CERTIFICATION: Depending on the geographic region of the work authorized by this verification, the appropriate 401 certifying authority has made the following determinations:

Washington Department of Ecology (Ecology) (Projects in all areas except as described for the other certifying agencies listed below): General and Specific WQC Conditions

A. State General Conditions for all Nationwide Permits

In addition to all of the U.S. Army Corps of Engineers' (Corps) national and Seattle District'sregional permit conditions, the following state general Water Quality Certification (WQC) conditions **apply to all NWPs whether granted or granted with conditions** in Washington where Ecology is the certifying authority.

Due to the lack of site specific information on the discharge types, quantities, and specific locations, as well as the condition of receiving waters and the quantity of waters (including wetlands) that may be lost, Ecology may need to review the project if one of the following stategeneral conditions is triggered.

This case-by-case review may be required, and additional information regarding the project and associated discharges may be needed, to verify that the proposed project would comply with state water quality requirements and if an individual WQC is required or if the project meets this programmatic WQC.

1. **In-water construction activities**. Ecology WQC review is required for projects or activities authorized under NWPs where the project proponent has indicated on the Joint Aquatic Resource Permit Application (JARPA) question 9e that the project or activity will not meet State water quality standards, or has provided information indicating that the project or activity will cause, or

may be likely to cause or contributeto an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC).

Note: In-water activities include any activity within a jurisdictional wetland and/orwaters.

2. **Projects or Activities Discharging to Impaired Waters**. Ecology WQC review is required for projects or activities that will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may result in further exceedances of the specific listedparameter to determine if the project meets this programmatic WQC or will require individual WQC.

To determine if your project or activity is in a 303(d) listed segment of a waterbody, visitEcology's Water Quality Assessment webpage for maps and search tools.

3. **Aquatic resources requiring special protection**. Certain aquatic resources are unique and difficult-to-replace components of the aquatic environment in Washington. Activities that would affect these resources must be avoided to the greatest extent practicable. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscapesettings.

Ecology WQC review is required for projects or activities in areas identified below to determine if the project meets this programmatic WQC or will require individual WQC.

a. Activities in or affecting the following aquatic resources:
    i. Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):
        - Estuarine wetlands.
        - Wetlands of High Conservation Value.
        - Bogs.
        - Old-growth forested wetlands and mature forested wetlands.
        - Wetlands in coastal lagoons.
        - Wetlands in dunal systems along the Washington coast.
        - Vernal pools.
        - Alkali wetlands.

    ii. Fens, aspen-dominated wetlands, camas prairie wetlands.

    iii. Category I wetlands.

    iv. Category II wetlands with a habitat score ≥ 8 points.

b. Activities in or resulting in a loss of eelgrass (Zostera marina) beds.

This state general condition does not apply to the following NWPs:
NWP 20 – Response Operations for Oil and Hazardous Substances
NWP 32 – Completed Enforcement Actions
NWP 48 – Commercial Shellfish Mariculture Activities

4. **Loss of More than 300 Linear Feet of Streambed.** For any project that results in the lossof more than 300 linear feet of streambed Ecology WQC review is required to determineif the project meets this programmatic WQC or will require individual WQC.

5. **Temporary Fills.** For any project or activity with temporary fill in wetlands or other waters for

more than six months Ecology WQC review is required to determine if theproject meets this programmatic WQC or will require individual WQC.

6. **Mitigation.** Project proponents are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resourceswherever practicable. For projects requiring Ecology WQC review or an individual WQC with unavoidable impacts to aquatics resources, a mitigation plan must be provided.

    a. Wetland mitigation plans submitted for Ecology review and approval shall be based on the most current guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (available on Ecology's website) and shall, at aminimum, include the following:

        i. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

        ii. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).

        iii. The rationale for the mitigation site that was selected.

        iv. The goals and objectives of the compensatory mitigation project.

        v. How the mitigation project will be accomplished, including construction sequencing, best management practices to protect water quality, proposed performance standards for measuring success and the proposed buffer widths.

        vi. How it will be maintained and monitored to assess progress toward goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

        vii. How the compensatory mitigation site will be legally protected for the long term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology Publications #09-06-032 (Western Washington) and #10-06-007 (Eastern Washington)) for guidance on selecting suitable mitigation sites and developing mitigation plans.

Ecology encourages the use of alternative mitigation approaches, includingcredit/debit methodology, advance mitigation, and other programmatic approaches such as mitigation banks and in-lieu fee programs. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. Information on alternative mitigation approaches is available on Ecology's website.

    b. Mitigation for other aquatic resource impacts will be determined on a case-by-case basis.

7. **Stormwater Pollution Prevention**. All projects involving land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoiddischarge of pollutants in stormwater runoff to waters.

    a. For land disturbances during construction, the applicant must obtain and

implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

b. Following construction, prevention or treatment of on-going stormwater runofffrom impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permitinformation are available on Ecology's website.

8. **Application**. For projects or activities that will require Ecology WQC review, or anindividual WQC, project proponents must provide Ecology with a JARPA or the equivalent information, along with the documentation provided to the Corps, as described in national general condition 32, Pre-Construction Notification (PCN), including, where applicable:

   a. A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project discharge(s) would cause, best management practices (BMPs), and proposed means to monitor the discharge(s).

   b. List of all federal, state or local agency authorizations required to be used for anypart of the proposed project or any related activity.

   c. Drawings indicating the OHWM, delineation of special aquatic sites, and other waters of the state. Wetland delineations must be prepared in accordance with thecurrent method required by the Corps and shall include Ecology's Wetland Rating form. Wetland Rating forms are subject to review and verification by Ecology staff.

   Guidance for determining the OHWM is available on Ecology's website.

   d. A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted. See stategeneral condition 5.

   e. Other applicable requirements of Corps NWP general condition 32, Corps regional conditions, or notification conditions of the applicable NWP.

Ecology **grants with conditions Water Quality Certification** (WQC) for this NWP provided that Ecology individual WQC review is not required per the state general conditions (see above) and the following conditions:

Ecology Section 401 Water Quality Certification – Granted with conditions. Ecology individual WQC is required for projects or activities authorized under this NWP if:

The project or activity is not authorized though a Model Toxics Control Act (MTCA) order or a Comprehensive Environmental Response, Compensation and Liability Act(CERCLA) order

Environmental Protection Agency (EPA) (on Tribal Lands where Tribes Do Not Have Treatment in a Similar Manner as a State and Lands with Exclusive Federal Jurisdiction in Washington):

On behalf of the 28 tribes that do not have treatment in a similar manner as a state and for exclusive federal jurisdiction lands located within the state of Washington, EPA Region 10 has determined that CWA Section 401 WQC for the following proposed NWPs is granted with conditions. EPA Region 10 has determined that any discharge authorized under the following proposed NWPs will comply with water quality requirements, as defined at 40 C.F.R. § 121.1(n), subject to the following conditions pursuant to CWA Section 401(d).

General Conditions:

EPA General Condition 1 – Aquatic Resources of Special Concern

Activities resulting in a point source discharge in the following types of aquatic resources of special concern shall request an individual project-specific CWA Section 401 WQC: mature forested wetlands; bogs, fens and other peatlands; vernal pools; aspen-dominated wetlands; alkali wetlands; camas prairie wetlands; wetlands in dunal systems along the Oregon or Washington Coast; riffle-pool complexes of streams; marine or estuarine mud-flats; salt marshes; marine waters with native eelgrass or kelp beds; or marine nearshore forage fish habitat. To identify whether a project would occur in any of these aquatic resources of special concern, project proponents shall use existing and available information to identify the location and type of resources, including using the U.S. Fish and Wildlife Service's online digital National Wetland Inventory maps, identifying project location on topographical maps, and/or providing on-site determinations as required by the Corps. When a project requires a Pre-Construction Notification (PCN) to the Corps, project proponents shall work with the Corps to identify whether the project is in any of these specific aquatic resources of special concern.

EPA General Condition 2 – Soil Erosion and Sediment Controls

Turbidity shall not exceed background turbidity by more than 50 Nephelometric Turbidity Units (NTU) above background instantaneously or more than 25 NTU above background for more than ten consecutive days.[8] Projects or activities that are expected to exceed these levels require an individual project-specific CWA Section 401 WQC.

The turbidity standard shall be met at the following distances from the discharge:

Wetted Stream Width at Discharge Point	**Approximate Downstream Point to Sample to Determine Compliance**
Up to 30 feet	50 feet
>30 to 100 feet	100 feet
>100 feet to 200 feet	200 feet
>200 feet	300 feet
Lake, Pond, Reservoir	Lesser of 100 feet or maximum surface distance

For Marine Water	**Point of Compliance for Temporary Area of Mixing**
Estuaries or Marine Waters	Radius of 150 feet from the activity causing the turbidity exceedance

Measures to prevent and/or reduce turbidity shall be implemented and monitored prior to, during, and after construction. Turbidity monitoring shall be done at the point of compliance within 24 hours of a precipitation event of 0.25 inches or greater. During monitoring and maintenance, if turbidity limits are exceeded or if measures are identified as ineffective, then additional measures shall be taken to come into compliance and EPA shall be notified within 48 hours of the exceedance or measure failure.

EPA General Condition 3 - Compliance with Stormwater Pollution Prevention and the National Pollutant Discharge Elimination System Permit Provisions

For land disturbances during construction that 1) disturb one or more acres of land, or 2) will disturb less than one acre of land but are part of a common plan of development or sale that will ultimately disturb one or more acres of land, the permittee shall obtain and implement Construction Stormwater General Permit requirements,[9] including:

1. The permittee shall develop a Stormwater Pollution Prevention Plan (SWPPP)[10] and submit it to EPA Region 10 and appropriate Corps District; and
2. Following construction, prevention or treatment of ongoing stormwater runoff from impervious surfaces that includes soil infiltration shall be implemented.

EPA General Condition 4 – Projects or Activities Discharging to Impaired Waters

Projects or activities are not authorized under the NWPs if the project will involve point source discharges into an active channel (e.g., flowing or open waters) of a water of the U.S. listed as impaired under CWA Section 303(d) and/or if the waterbody has an approved Total Maximum Daily Load (TMDL) and the discharge may result in further exceedance of a specific parameter (e.g., total suspended solids, dissolved oxygen, temperature) for which the waterbody is listed or has an approved TMDL. The current lists of impaired waters of the U.S. under CWA Section 303(d) and waters of the U.S. for which a TMDL has been approved are available on EPA Region 10's web site at: https://www.epa.gov/tmdl/impaired-waters-and-tmdls-region-10.

EPA General Condition 5 – Notice to EPA

All project proponents shall provide notice to EPA Region 10 prior to commencing construction activities authorized by a NWP. This will provide EPA Region 10 with the opportunity to inspect the activity for the purposes of determining whether any discharge from the proposed project will violate this CWA Section 401 WQC. Where the Corps requires a PCN for an applicable NWP, the project proponent shall also provide the PCN to EPA Region 10. EPA Region 10 will provide written notification to the project proponent if the proposed project will violate the water quality certification of the NWP.

EPA General Condition 6 – Unsuitable Materials

The project proponent shall not use wood products treated with leachable chemical components (e.g., copper, arsenic, zinc, creosote, chromium, chloride, fluoride, pentachlorophenol), which result in a discharge to waters of the U.S., unless the wood products meet the following criteria:

1. Wood preservatives and their application shall be in compliance with EPA label requirements and criteria of approved EPA Registration Documents under the Federal Insecticide, Fungicide, and Rodenticide Act;
2. Use of chemically treated wood products shall follow the Western Wood Preservatives Institute (WWPI) guidelines and BMPs to minimize the preservative migrating from treated wood into the aquatic environment;
3. For new or replacement wood structures, the wood shall be sealed with non-toxic products such as water-based silica or soy-based water repellants or sealers to prevent or limit leaching. Acceptable alternatives to chemically treated wood include untreated wood, steel (painted, unpainted or coated with epoxy petroleum compound or plastic), concrete and plastic lumber; and
4. All removal of chemically treated wood products (including pilings) shall follow the most recent "EPA Region 10 Best Management Practices for Piling Removal and Placement in Washington State."

Federally recognized tribes located within the state of Washington

EPA Region 10 cannot certify that the range of discharges from potential projects authorized under this NWP will comply with water quality requirements, as defined in 40 CFR 121.1(n). Therefore, CWA Section 401 water quality certification is denied for this NWP and applicants must request an individual water quality certification, consistent with 40 CFR 121.5.

Lands of Exclusive Federal Jurisdiction

EPA Region 10 cannot certify that the range of discharges from potential projects authorized under this NWP will comply with water quality requirements, as defined in 40 CFR 121.1(n). Therefore, CWA Section 401 water quality certification is denied for this NWP and applicants must request an individual water quality certification, consistent with 40 CFR 121.5.

Specific Tribes with Certifying Authority (Projects in Specific Tribal Areas):
WQC was issued by the Swinomish Indian Tribal Community. WQC was waived by the Confederated Tribes of the Chehalis Reservation and Colville Indian Reservation, Kalispel Tribe of Indians, Port Gamble S'Klallam Tribe, Quinault Indian Nation, and the Spokane Tribe of Indians. WQC was denied by the Lummi Nation, Makah Tribe, Puyallup Tribe of Indians, and the Tulalip Tribes; therefore, individual WQC is required from these tribes.

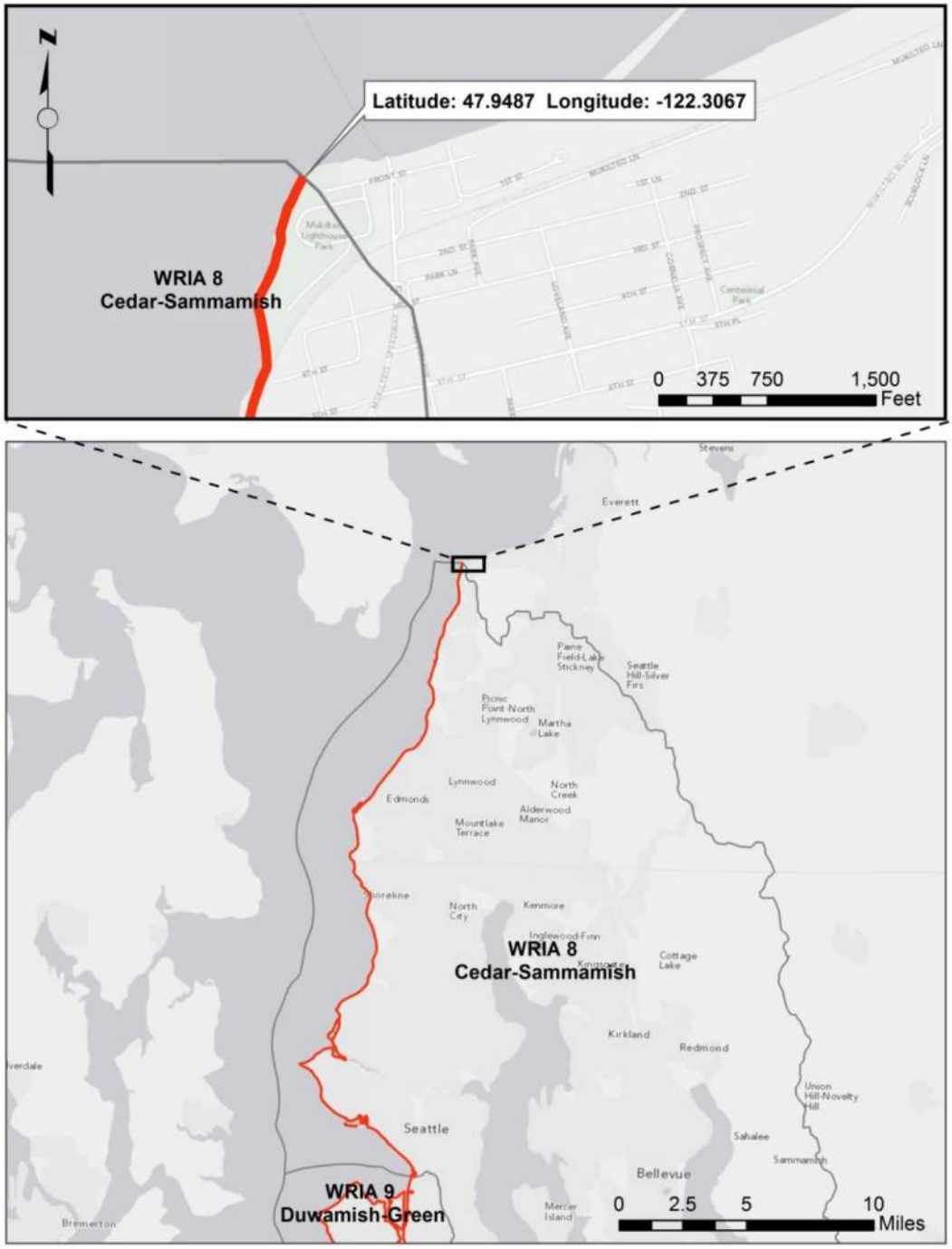
F. COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY RESPONSE FOR THIS NWP:

Ecology's determination is that they concur with conditions that this NWP is consistent with CZMA.

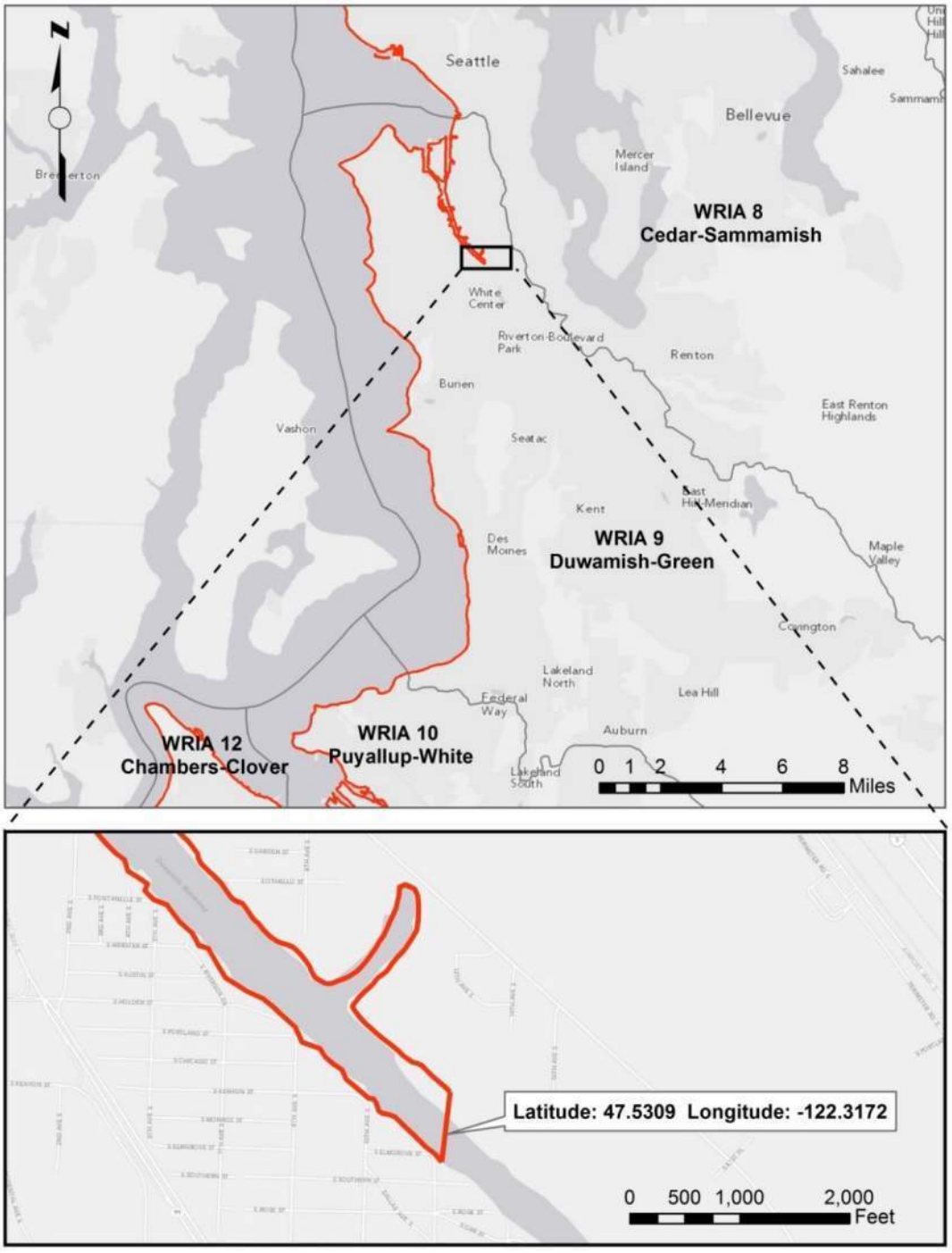
CZM Federal Consistency Response – Concur with Conditions.

1. A CZM Federal Consistency Decision is required for projects or activities under this NWP if a State 401 Water Quality Certification is required.

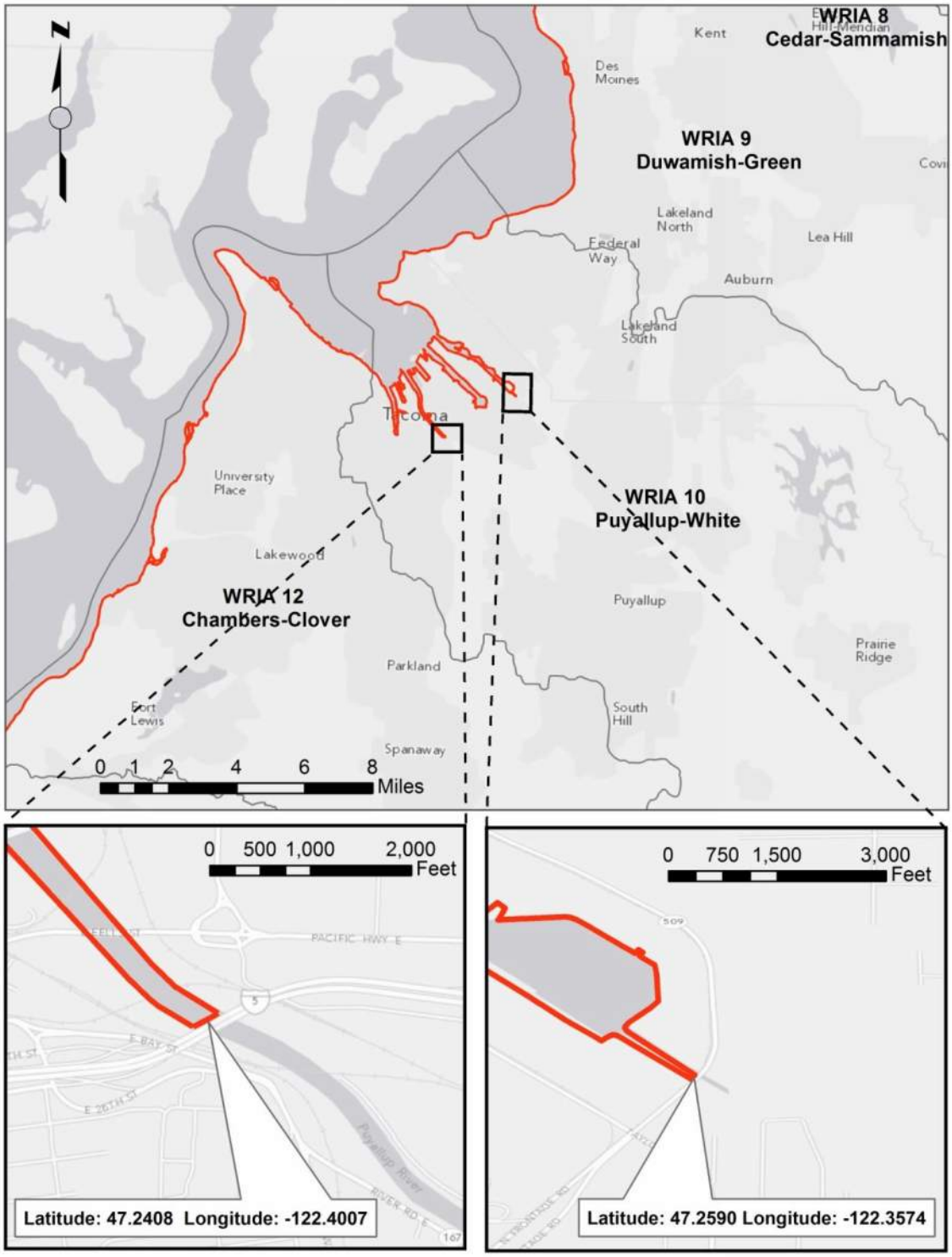
Seattle District Regional General Conditions - Figures
Figure 1: RGC 3 - WRIAs 8, 9, 10, 11, and 12
a. WRIA 8



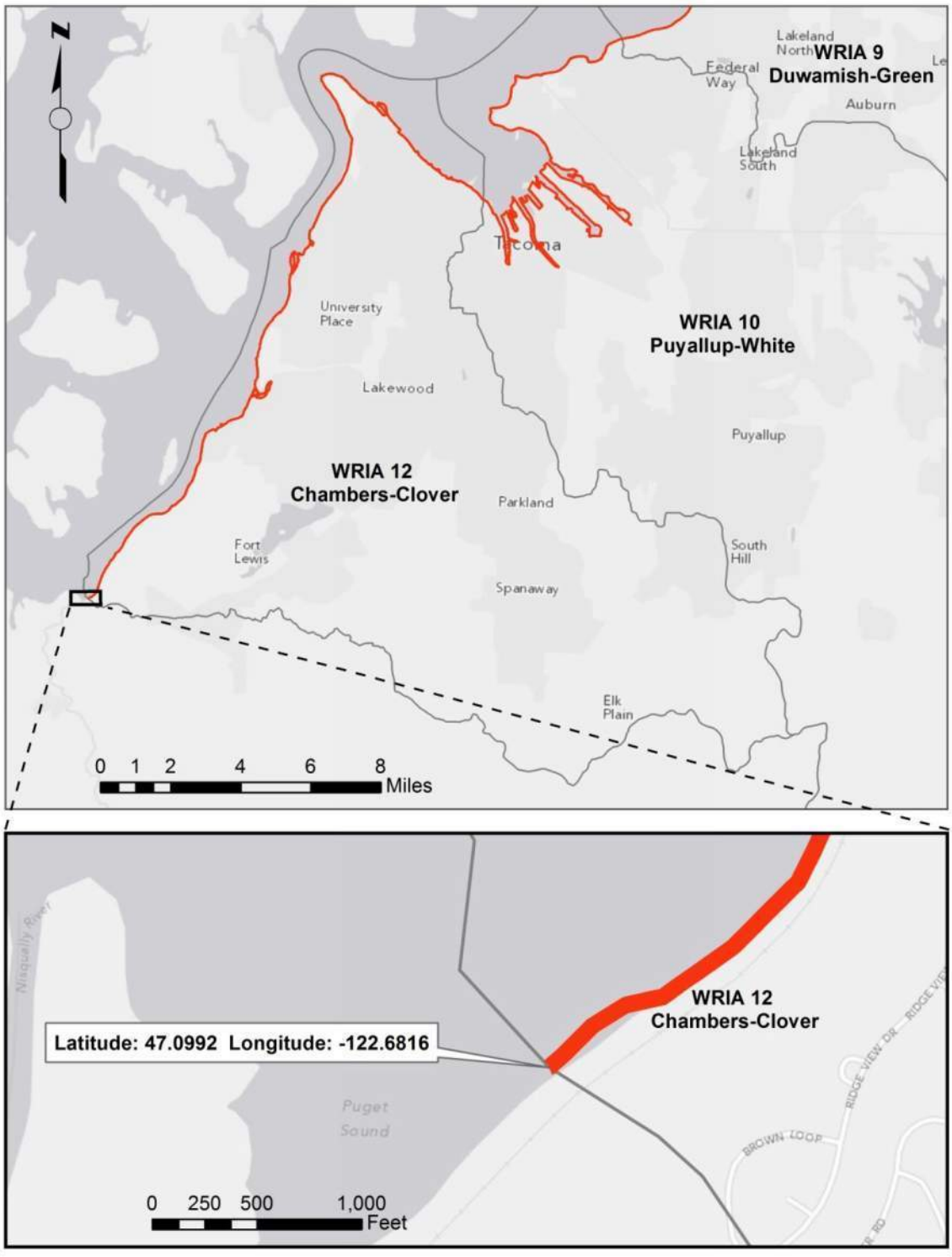
b. WRIA 9


N
Seattle
Bellevue
Sahalee
Mercer Island
Bremerton
WRIA 8
Cedar-Sammamish
White Center
Riverton-Boulevard Park
Renton
Burien
East Renton Highlands
Vashon
SeaTac
Kent
East Hill-Meridian
Des Moines
WRIA 9
Duwamish-Green
Maple Valley
Covington
Lakeland North
Lea Hill
Federal Way
Auburn
WRIA 12
Chambers-Clover
WRIA 10
Puyallup-White
Lakeland South
0 1 2 4 6 8
Miles
Latitude: 47.5309 Longitude: -122.3172
0 500 1,000 2,000
Feet

c. WRIA 10


WRIA 8
Cedar-Sammamish
WRIA 9
Duwamish-Green
WRIA 10
Puyallup-White
WRIA 12
Chambers-Clover
Kent
Des Moines
Lakeland North
Federal Way
Lea Hill
Auburn
Lakeland South
Tacoma
University Place
Lakewood
Puyallup
Parkland
Prairie Ridge
South Hill
Fort Lewis
Spanaway
0 1 2 4 6 8 Miles
0 500 1,000 2,000 Feet
Latitude: 47.2408 Longitude: -122.4007
0 750 1,500 3,000 Feet
Latitude: 47.2590 Longitude: -122.3574

d. WRIA 12


N
Lakeland North
WRIA 9
Duwamish-Green
Federal Way
Auburn
Lakeland South
Tacoma
University Place
WRIA 10
Puyallup-White
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
Elk Plain
0 1 2 4 6 8
Miles
Nisqually River
WRIA 12
Chambers-Clover
Latitude: 47.0992 Longitude: -122.6816
Puget Sound
BROWN LOOP
RIDGE VIEW DR
0 250 500 1,000
Feet

e. WRIA 11

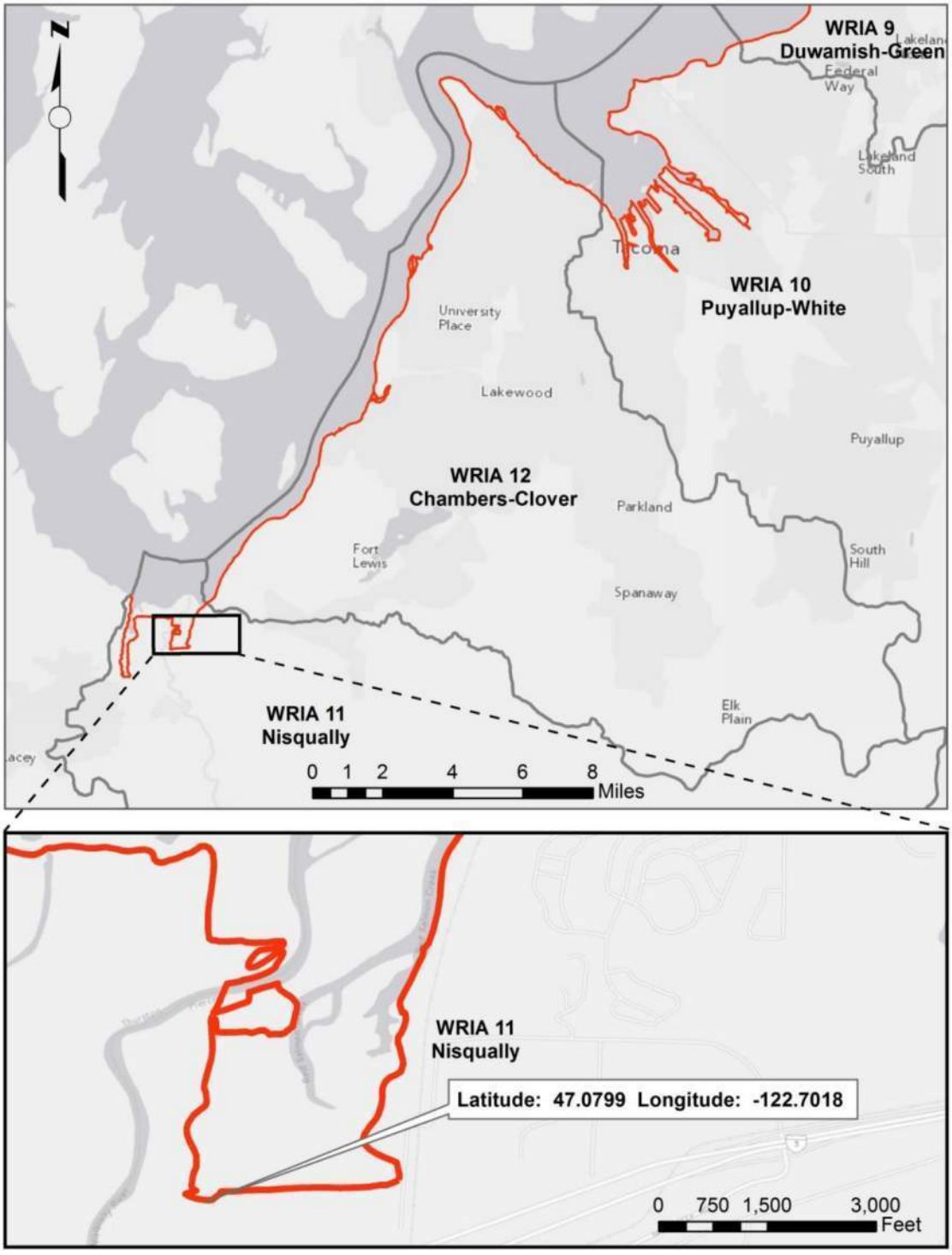
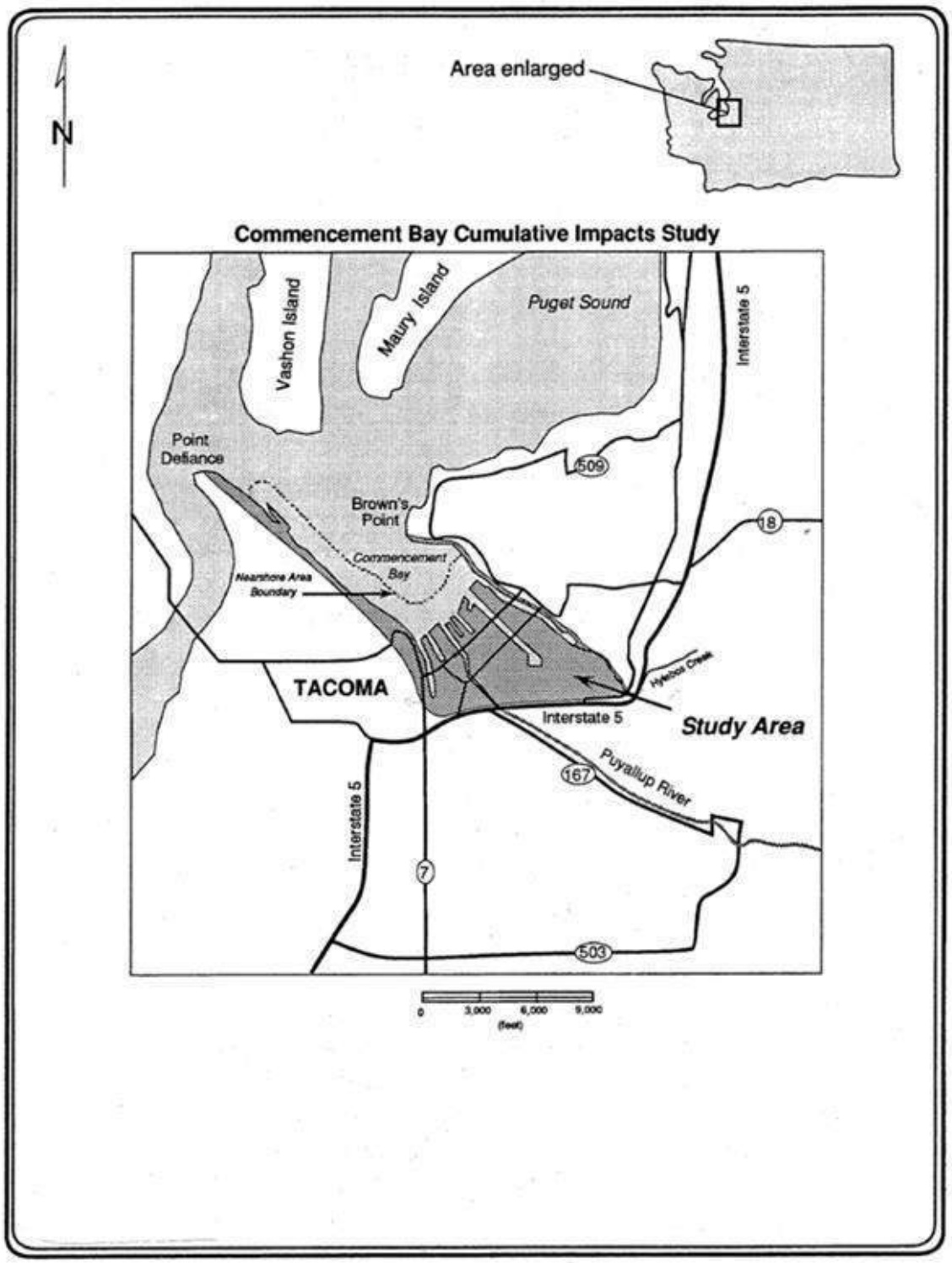

N
WRIA 9
Duwamish-Green
Federal Way
Lakeland South
Tacoma
WRIA 10
Puyallup-White
University Place
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
Elk Plain
WRIA 11
Nisqually
0 1 2 4 6 8
Miles
WRIA 11
Nisqually
Latitude: 47.0799 Longitude: -122.7018
0 750 1,500 3,000
Feet

Figure 2. RGC 4 - Commencement Bay Study Area



US Army Corps of Engineers
Seattle District

NATIONWIDE PERMIT 39
Terms and Conditions

2021 NWPs - Final 16; Effective Date: March 15, 2021
Revised April 7, 2022

A. Description of Authorized Activities
B. U.S. Army Corps of Engineers (Corps) National General Conditions for All Final 16 NWPs
C. Seattle District Regional General Conditions
D. Seattle District Regional Specific Conditions for this Nationwide Permit (NWP)
E. 401 Water Quality Certification (401 WQC)
F. Coastal Zone Management Consistency Response for this NWP

In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit (NWP) authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

39. Commercial and Institutional Developments.
Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, wastewater treatment facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses and new ski areas is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

Note: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided by the Corps to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL 2021 NWPs - FINAL 16

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7

consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle

Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is

required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph

(e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management

consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:
(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to

satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. SEATTLE DISTRICT REGIONAL GENERAL CONDITIONS: The following conditions apply to the

RGC 1, Project Drawings
Drawings must be submitted with pre-construction notification (PCN). Drawings must provide a clear understanding of the proposed project, and how waters of the United States will be affected. Drawings must be originals and not reduced copies of large-scale plans. Engineering drawings are not required. Existing and proposed site conditions (manmade and landscape features) must be drawn to scale.

RGC 2, Aquatic Resources Requiring Special Protection
A PCN is required for activities resulting in a loss of waters of the United States in wetlands in dunal systems along the Washington coast, mature forested wetlands, bogs and peatlands, aspen-dominated wetlands, alkali wetlands, vernal pools, camas prairie wetlands, estuarine wetlands, and wetlands in coastal lagoons.

RGC 3, New Bank Stabilization in Tidal Waters of Puget Sound

Activities involving new bank stabilization in tidal waters in Water Resource Inventory Areas (WRIAs) 8, 9, 10, 11 and 12 (within the areas identified on Figures 1a through 1e) cannot be authorized by NWP.

RGC 4, Commencement Bay
No permanent losses of wetlands or mudflats within the Commencement Bay Study Area may be authorized by any NWP (see Figure 2).

RGC 5, Bank Stabilization
All projects including new or maintenance bank stabilization activities in waters of the United States where salmonid species are present or could be present, requires PCN to the U.S. Army Corps of Engineers (Corps) (see NWP general condition 32).
For new bank stabilization projects only, the following must be submitted to the Corps:

a. The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.
b. The type and length of existing bank stabilization within 300 feet of the proposed project.
c. A description of current conditions and expected post-project conditions in the waterbody.
d. A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

In addition to a. through d., the results from any relevant geotechnical investigations can be submitted with the PCN if it describes current or expected conditions in the waterbody.

RGC 6, Crossings of Waters of the United States
Any project including installing, replacing, or modifying crossings of waters of the United States, such as culverts or bridges, requires submittal of a PCN to the U.S. Army Corps of Engineers (see NWP general condition 32).
If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, the project must apply the stream simulation design method from the Washington Department of Fish and Wildlife located in the *Water Crossing Design Guidelines* (2013), or a design method which provides passage at all life stages at all flows where the salmonid species would naturally seek passage. If the stream simulation design method is not applied for a culvert where salmonid species are present or could be present, the project proponent must provide a rationale in the PCN sufficient to establish one of the following:

a. The existence of extraordinary site conditions.
b. How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

Culverts installed under emergency authorization that do not meet the above design criteria will be required to meet the above design criteria to receive an after-the-fact nationwide permit verification.

RGC 7, Stream Loss
A PCN is required for all activities that result in the loss of any linear feet of streams.

RGC 8, Construction Boundaries
Permittees must clearly mark all construction area boundaries within waters of the United States before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.

RGC 9, ESA Reporting to NMFS
For any nationwide permit that may affect threatened or endangered species;
Incidents where any individuals of fish species, marine mammals and/or sea turtles listed by National Oceanic and Atmospheric Administration Fisheries, National Marine Fisheries Service (NMFS) under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the U.S. or structures or work in navigable waters of the U.S. authorized by this Nationwide Permit verification shall be reported to NMFS, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the Seattle District of the U.S. Army Corps of Engineers at (206) 764-3495. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure or some unnatural cause. The finder may be asked to carry out instructions provided by the NMFS to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

D. SEATTLE DISTRICT REGIONAL SPECIFIC CONDITIONS FOR THIS NWP:

1. Pre-construction notification must identify if the project is an individual lot within a subdivision or part of a multiphase development.

E. 401 WATER QUALITY CERTIFICATION: Depending on the geographic region of the work authorized by this verification, the appropriate 401 certifying authority has made the following determinations:

Washington Department of Ecology (Ecology) (Projects in all areas except as described for the other certifying agencies listed below): General and Specific WQC Conditions

A. State General Conditions for all Nationwide Permits

In addition to all of the U.S. Army Corps of Engineers' (Corps) national and Seattle District'sregional permit conditions, the following state general Water Quality Certification (WQC) conditions **apply to all NWPs whether granted or granted with conditions** in Washington where Ecology is the certifying authority.

Due to the lack of site specific information on the discharge types, quantities, and specific locations, as well as the condition of receiving waters and the quantity of waters (including wetlands) that may be lost, Ecology may need to review the project if one of the following stategeneral conditions is triggered.

This case-by-case review may be required, and additional information regarding the project and associated discharges may be needed, to verify that the proposed project would comply with state water quality requirements and if an individual WQC is required or if the project meets this programmatic WQC.

1. **In-water construction activities**. Ecology WQC review is required for projects or activities authorized under NWPs where the project proponent has indicated on the Joint Aquatic Resource Permit Application (JARPA) question 9e that the project or activity will not meet State water quality standards, or has provided information indicating that the project or activity will cause, or may be likely to cause or contributeto an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC).

Note: In-water activities include any activity within a jurisdictional wetland and/orwaters.

2. **Projects or Activities Discharging to Impaired Waters**. Ecology WQC review is required for projects or activities that will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may result in further exceedances of the specific listedparameter to determine if the project meets this programmatic WQC or will require individual WQC.

To determine if your project or activity is in a 303(d) listed segment of a waterbody, visitEcology's Water Quality Assessment webpage for maps and search tools.

3. **Aquatic resources requiring special protection**. Certain aquatic resources are unique and difficult-to-replace components of the aquatic environment in Washington. Activities that would affect these resources must be avoided to the greatest extent practicable. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscapesettings.

Ecology WQC review is required for projects or activities in areas identified below to determine if the project meets this programmatic WQC or will require individual WQC.

a. Activities in or affecting the following aquatic resources:
    i. Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):
        - Estuarine wetlands.
        - Wetlands of High Conservation Value.
        - Bogs.
        - Old-growth forested wetlands and mature forested wetlands.
        - Wetlands in coastal lagoons.
        - Wetlands in dunal systems along the Washington coast.
        - Vernal pools.
        - Alkali wetlands.

    ii. Fens, aspen-dominated wetlands, camas prairie wetlands.

    iii. Category I wetlands.

    iv. Category II wetlands with a habitat score ≥ 8 points.

b. Activities in or resulting in a loss of eelgrass (Zostera marina) beds.

This state general condition does not apply to the following NWPs:
NWP 20 – Response Operations for Oil and Hazardous Substances
NWP 32 – Completed Enforcement Actions
NWP 48 – Commercial Shellfish Mariculture Activities

4. **Loss of More than 300 Linear Feet of Streambed.** For any project that results in the lossof more than 300 linear feet of streambed Ecology WQC review is required to determineif the project meets this programmatic WQC or will require individual WQC.

5. **Temporary Fills.** For any project or activity with temporary fill in wetlands or other waters for more than six months Ecology WQC review is required to determine if theproject meets this programmatic WQC or will require individual WQC.

6. **Mitigation.** Project proponents are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resourceswherever practicable.

For projects requiring Ecology WQC review or an individual WQC with unavoidable impacts to aquatics resources, a mitigation plan must be provided.

a. Wetland mitigation plans submitted for Ecology review and approval shall be based on the most current guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (available on Ecology's website) and shall, at aminimum, include the following:

i. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

ii. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).

iii. The rationale for the mitigation site that was selected.

iv. The goals and objectives of the compensatory mitigation project.

v. How the mitigation project will be accomplished, including construction sequencing, best management practices to protect water quality, proposed performance standards for measuring success and the proposed buffer widths.

vi. How it will be maintained and monitored to assess progress toward goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

vii. How the compensatory mitigation site will be legally protected for the long term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology Publications #09-06-032 (Western Washington) and #10-06-007 (Eastern Washington)) for guidance on selecting suitable mitigation sites and developing mitigation plans.

Ecology encourages the use of alternative mitigation approaches, includingcredit/debit methodology, advance mitigation, and other programmatic approaches such as mitigation banks and in-lieu fee programs. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. Information on alternative mitigation approaches is available on Ecology's website.

b. Mitigation for other aquatic resource impacts will be determined on a case-by-case basis.

7. **Stormwater Pollution Prevention**. All projects involving land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoiddischarge of pollutants in stormwater runoff to waters.

a. For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

b. Following construction, prevention or treatment of on-going stormwater runofffrom impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permitinformation are available on Ecology's website.

8. **Application**. For projects or activities that will require Ecology WQC review, or anindividual WQC, project proponents must provide Ecology with a JARPA or the equivalent information, along with the documentation provided to the Corps, as described in national general condition 32, Pre-Construction Notification (PCN), including, where applicable:

    a. A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project discharge(s) would cause, best management practices (BMPs), and proposed means to monitor the discharge(s).

    b. List of all federal, state or local agency authorizations required to be used for anypart of the proposed project or any related activity.

    c. Drawings indicating the OHWM, delineation of special aquatic sites, and other waters of the state. Wetland delineations must be prepared in accordance with thecurrent method required by the Corps and shall include Ecology's Wetland Rating form. Wetland Rating forms are subject to review and verification by Ecology staff.

    Guidance for determining the OHWM is available on Ecology's website.

    d. A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted. See stategeneral condition 5.

    e. Other applicable requirements of Corps NWP general condition 32, Corps regional conditions, or notification conditions of the applicable NWP.

Ecology **grants Water Quality Certification** for this NWP provided that individual WQC review is not required per the state general conditions (see above) and the following NWP specific conditions:

39 – Commercial and Institutional Developments

Ecology Section 401 Water Quality Certification – Granted with conditions. Ecology individual WQC is required for projects or activities authorized under this NWP if:

1. The project or activity affects ¼ acre or more of waters; or

2. This NWP is authorized in conjunction with any other NWP.

Environmental Protection Agency (EPA) (on Tribal Lands where Tribes Do Not Have Treatment in a Similar Manner as a State and Lands with Exclusive Federal Jurisdiction in Washington):
Individual WQC is required by EPA for this NWP.

Specific Tribes with Certifying Authority (Projects in Specific Tribal Areas):
WQC was issued by the Swinomish Indian Tribal Community. WQC was waived by the Confederated Tribes of the Chehalis Reservation and Colville Indian Reservation, Kalispel Tribe of Indians, Port Gamble S'Klallam Tribe, Quinault Indian Nation, and the Spokane Tribe of Indians. WQC was denied by the Lummi Nation, Makah Tribe, Puyallup Tribe of Indians, and the Tulalip Tribes; therefore, individual WQC is required from these tribes.

F. COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY RESPONSE FOR THIS NWP:

Ecology's determination is that they concur that this NWP is consistent with CZMA.

1. A (individual) CZM Federal Consistency Decision is required for projects or activities under this NWP if a (individual) State 401 Water Quality Certification is required.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

September 1, 2023

Bridge Development Partners, LLC
ATTN: Kyle Siekawitch
10655 Northeast 4th Street, Suite 500
Bellevue, WA 98004

Re: Water Quality Certification Order No. **22149** (Corps No. **NWS-2022-0778**), Maralco Industrial Redevelopment, King County, Washington

Dear Kyle Siekawitch:

On December 15, 2022, Bridge Development Partners, LLC submitted a request for a Section 401 Water Quality Certification (WQC) under the federal Clean Water Act for the Maralco Industrial Redevelopment, King County, Washington.

On behalf of the state of Washington, the Department of Ecology certifies that the work described in the Water Quality Certification Request and supplemental documents complies with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, as amended, and applicable state laws. **This certification is subject to the enclosed Water Quality Certification Order (WQC Order).**

Please ensure that anyone doing work under this WQC Order has read, is familiar with, and is able to follow all of the provisions within the attached WQC Order.

If you have any questions about this decision, please contact Lori White at (564) 669-1396. The enclosed WQC Order may be appealed by following the procedures described within.

Sincerely,

Loree' Randall

Loree' Randall, Section Manager
Federal Permitting Section
Shorelands and Environmental Assistance Program

Enclosure (4)

By certified mail: 9489 0090 0027 6383 6851 68

Sent via e-mail: ksiekawitch@bridgedev.com

E-cc: Samantha Stanford, U.S. Army Corps of Engineers
Jon Pickett, Soundview Consultants LLC
Lori White, Ecology
Rowan Kelsall, Ecology
ECYREFEDPERMITS@ecy.wa.gov

In The Matter of Granting a Water Quality Certification to Bridge Development Partners, LLC pursuant to 33 U.S.C. 1341 (FWPCA § 401), RCW 90.48.120, RCW 90.48.260 and Chapter 173-201A WAC

Bridge Development Partners, LLC
Attn: Kyle Siekawitch
10655 Northeast 4th Street, Suite 500
Bellevue, WA 98004

WQC Order No.	22149
Corps Reference No.	NWS-2022-0778
Site Location	Maralco Industrial Redevelopment project, located within Stream Z and Wetland A, Kent, King County, Washington.

Bridge Development Partners, LLC submitted a request for a Section 401 Water Quality Certification (WQC) under the federal Clean Water Act to the Department of Ecology (Ecology) for the Maralco Industrial Redevelopment project, King County, Washington. The following required processing dates are listed below:

- On 10/3/2022 the Bridge Development Partners, LLC submitted a pre-filing meeting request.
- On 12/15/2022, Ecology received a request for Clean Water Section 401 Water Quality Certification.
- On 3/21/2023, the U.S. Army Corps of Engineers (Corps) sent a permit notification to Ecology that that they are reviewing the project for authorization under Nationwide Permit No. 39 and requires an individual Section 401.
- On 3/24/2023, Ecology issued a public notice for the project.

The project proposes an industrial redevelopment including clearing and grading, construction of a large warehouse, a stormwater facility, utility installation, and landscaping. The project will permanently impact portions of Stream Z and Wetland A.

The project site is located at 7730 South 202nd Street, Kent, Stream Z and Wetland A, King County, Washington, Section 01, Township 22 N., Range 04 E., within Water Resource Inventory Area (WRIA) 09 Duwamish-Green.

Authorities

In exercising authority under 33 U.S.C. §1341, RCW 90.48.120, and RCW 90.48.260, Ecology has reviewed this WQC request pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. §§1311, 1312, 1313, 1316, and 1317.
2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. §1313 and by Chapter 90.48 RCW, and with other applicable state laws; and
3. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.
4. Conformance with Washington's prohibition on discharges that cause or tend to cause pollution of waters of the state of Washington. RCW 90.48.080.
5. The Project Proponent of the project authorized is responsible for obtaining all other permits, licenses, and certifications that may be required by federal, state, local or tribal authorities.

With this Water Quality Certification Order (WQC Order), Ecology is granting with conditions Bridge Development Partners, LLC's request for a Section 401 Water Quality Certification for the Maralco Industrial Redevelopment, Stream Z and Wetland A located in King County. Ecology has determined that the proposed discharges will comply with all applicable state water quality and other appropriate requirements of State law, provided the project is conducted in accordance with the WQC request that Ecology received on 12/15/2022 the supporting documents referenced in Table 1 below, **and the conditions of this WQC Order.**

Table 1 Supporting Documents

Date Received	Document Type	Title and Date	Author
12/15/2022	Joint Aquatic Resources Permit Application(JARPA) Form	JARPA 7/5/2022	Jon Pickett, Soundview Consultants LLC
12/15/2022	Drawings	JARPA 9/26/2022	Jon Pickett, Soundview Consultants LLC
12/15/2022	Biological Evaluation	Biological Evaluation, Maralco 7/13/2022	Soundview Consultants LLC
12/15/2022	Wetland Delineation	Wetland and Fish and Wildlife Habitat Assessment Report,	Soundview Consultants LLC

		Maralco Revised 3/18/2022; 7/26/2021	
12/15/2022	Wetland Rating	Wetland and Fish and Wildlife Habitat Assessment Report, Maralco Revised 3/18/2022; 7/26/2021	Soundview Consultants LLC
12/15/2022	Mitigation Plan	Conceptual Mitigation Plan, Maralco Revised 9/26/2022; 4/1/2022	Soundview Consultants LLC
5/9/2023	State Environmental Policy Act	City of Kent, Modified Mitigated Determination of Nonsignificance 5/4/2023	Nate Schildmeyer, Planning Manager/SEPA Official for City of Kent
6/2/2023	Water Quality Monitoring Plan	Water Quality Monitoring Plan, Maralco 6/26/2023	Soundview Consultants LLC

Issuance of this Section 401 Water Quality Certification for this proposal does not authorize Bridge Development Partners, LLC to exceed applicable state water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC) or sediment quality standards (Chapter 173-204 WAC) or other appropriate requirements of State law. Furthermore, nothing in this Section 401 Water Quality Certification absolves the Bridge Development Partners, LLC from liability for contamination and any subsequent cleanup of surface waters, ground waters, or sediments resulting from project construction or operations.

Water Quality Certification Conditions

The following conditions will be incorporated into the Corps permit and strictly adhered to by the Bridge Development Partners, LLC. Specific condition justifications and citations are provided below.

A. General Conditions

1. In this WQC Order, the term "Project Proponent" shall mean the Bridge Development Partners, LLC and its agents, assignees, and contractors.

    - Justification - Ecology needs to identify that conditions of this WQC Order apply to anyone conducting work on behalf of the Project Proponent to ensure compliance with the water quality standards and other applicable state laws.

- Citation - 40 CFR 121.1(j), Chapter 90.48 RCW, RCW 90.48.080, RCW 90.48.120, RCW 90.48.260, Chapter 173-200 WAC, Chapter 173-201A WAC, and WAC 173-225-010.

2. All submittals required by this WQC Order shall be sent to Ecology's Headquarters Office, Attn: Federal Permit Manager, via e-mail to fednotification@ecy.wa.gov and cc to lori.white@ecy.wa.gov. The submittals shall be identified with WQC Order No. 22149 and include the Project Proponent's name, Corps permit number, project name, project contact, and the contact phone number.

   - Justification - Ecology needs to identify where information and submittals are to be submitted to be in compliance with the requirements of this WQC Order.

   - Citation - Chapter 90.48 RCW, RCW 90.48.120, RCW 90.48.260, Chapter 173-201A WAC, and WAC 173-225-010.

3. Work authorized by this WQC Order is limited to the work described in the WQC request package received by Ecology on 12/15/2022 and the supporting documentation identified in Table 1.

   - Justification - Ecology has the authority to prevent and control pollution of state waters. By authorizing a discharge into a water of the state, through a WQC, Ecology is certifying the project as proposed will not negatively impact water quality. Therefore, it is imperative the project is conducted as it was presented during the review process. Any deviations from information within the WQC Request package and this WQC Order must be disclosed prior to the initiation of the planned work, and may require a new WQC request.

   - Citation - 40 CFR 121.5, 40 CFR 121.10, 40 CFR 121.11, Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.120, RCW 90.48.260, Chapter 173-200 WAC, Chapter 173-201A WAC, Chapter 173-204 WAC, and WAC 173-225-010.

4. The Project Proponent shall keep copies of this WQC Order on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and lead workers, and state and local government inspectors.

   - Justification - All parties (including on-site contractors) must be aware of and comply with the WQC Order for the protection of water quality.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, Chapter 173-201A WAC, and WAC 173-225-010.

5. The Project Proponent shall provide access to the project site and all mitigation sites upon request by Ecology personnel for site inspections, monitoring, and/or necessary data collection, to ensure that conditions of this WQC Order are being met.

- Justification - Ecology must be able to investigate and inspect construction sites and facilities for compliance with all state rules and laws.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.090, RCW 90.48.120, Chapter 173-201A WAC, and WAC 173-225-010.

6. The Project Proponent shall ensure that all project engineers, contractors, and other workers at the project site with authority to direct work have read and understand relevant conditions of this WQC Order and all permits, approvals, and documents referenced in this WQC Order. The Project Proponent shall provide Ecology a signed statement (see Attachment A for an example) before construction begins.

   - Justification - Ecology needs to ensure that anyone conducting work at the project, on behalf of the Project Proponent, are aware of and understand the required conditions of this WQC Order to ensure compliance with the water quality standards and other applicable state laws.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, Chapter 173-201A WAC, and WAC 173-225-010.

7. This WQC Order does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically provided for in conditions of this WQC Order.

   - Justification - Ecology has the authority to prevent and control pollution of state waters, and to protect designated uses. By authorizing a discharge into a water of the state, through a water quality certification, Ecology is certifying the project as proposed will not negatively impact state water quality and will comply with the state's water quality requirements. Therefore, it is imperative the project is conducted as it was presented during the review process, and as conditioned herein.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.120, Chapter 173-200 WAC, Chapter 173-201A WAC, WAC 173-201A-300(2)(e)(i), WAC 173-201A-310, WAC 173-204-120, and WAC 173-225-010.

8. Failure of any person or entity to comply with the WQC Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the state's water quality standards and the conditions of this WQC Order.

- Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses. Ecology has independent state authority to ensure protection of state water quality. Civil penalties and other enforcement actions are the primary means of securing compliance with water quality requirements.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.037, RCW 90.48.080, RCW 90.48.120, RCW 90.48.140, RCW 90.48.142, RCW 90.48.144, and WAC 173-225-010.

9. The Project Proponent shall provide Ecology documentation for review before undertaking any major changes to the proposed project that could significantly and adversely affect water quality, other than those project changes required by this WQC Order.

    - Justification - Ecology has independent authority to enforce our 401 certification conditions issued through this WQC Order pursuant to RCW 90.48, and has independent state authority to ensure protection of state water quality. In order to ensure the project will comply with water quality standards in the event of any major changes, Ecology must be able to review the scope of work involved in the construction and operation of the project, otherwise all work must stop and a new 401 certification pre-filing meeting, followed by a new WQC request (after requisite 30-days) is required.

    - Citation - 40 CFR 121.1(k) and (n), 40 CFR 121.3, 40 CFR 121.5, 40 CFR 121.11, Chapter 90.48 RCW, and Chapter 173-201 WAC.

10. The Project Proponent shall send (per A.2.) a copy of the final Federal permit to Ecology's Federal Permit Manager within two weeks of receiving it.

    - Justification - This condition is needed to ensure that all the conditions of the WQC Order have been incorporated into the federal permit.

    - Citation - 40 CFR 121.10, 40 CFR 121.11, and Chapter 90.48 RCW.

11. This WQC Order will automatically transfer to a new owner or operator if:

    a. A Request for Transfer of Order form is completed between the Project Proponent and new owner or operator with the specific transfer date of the WQC Order's obligations, coverage, and liability and submitted to Ecology per condition A.2. Link to form: https://apps.ecology.wa.gov/publications/SummaryPages/ECY070695.html;

    b. A copy of this WQC Order is provided to the new owner or operator; and

    c. Ecology does not notify the new Project Proponent that a new WQC Order is required to complete the transfer.

- Justification – Ecology has independent state authority to ensure protection of state water quality. Ecology needs to ensure that anyone conducting work at the project, including any new owners or operators, are aware of and understand the required conditions of this WQC Order to ensure compliance with the water quality standards and other applicable state laws.

- Citation – 40 CFR 121.5, Chapter 90.48 RCW, RCW 90.48.030, Chapter 173-201A WAC, and WAC 173-225-010.

B. Notification Requirements

1. The following notifications shall be made via phone or e-mail (e-mail is preferred) to Ecology's Federal Permit Manager via e-mail to fednotification@ecy.wa.gov and cc to lori.white@ecy.wa.gov. Notifications shall be identified with WQC Order No. 22149, Corps Reference No. NWS-2022-0778, and include the Project Proponent name, project name, project location, project contact and the phone number.

   a. Immediately following a violation of state water quality standards or when the project is out of compliance with any conditions of this WQC Order;

   b. At least ten (10) days prior to all pre-construction meetings;

   c. At least ten (10) days prior to conducting initial in-water work activities; and

   d. Within seven (7) days of completion of each in-water work activities.

      - Justification - Ecology has independent state authority to ensure protection of state water quality. Ecology must be aware of when a project starts and ends and whether there are any issues. This allows Ecology to evaluate compliance with the state water quality requirements.

      - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.120, Chapter 173-201A WAC, WAC 173-201A-300 - 330, Chapter 173-204 WAC, and WAC 173-225-010.

2. In addition to the phone or e-mail notification required under B.1.a. above, the Project Proponent shall submit a detailed written report to Ecology within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

   - Justification - Ecology has independent state authority to ensure protection of state water quality. This condition is intended to assure the Project Proponent remains in full compliance with state water quality requirements for the duration of the project.

- Citation - Chapter 90.48 RCW, RCW 90.48.120, Chapter 173-201A WAC, and WAC 173-225-010.

3. If the project construction is not completed within 13 months of issuance of this WQC Order, the Project Proponent shall submit per Condition A2 a written construction status report and submit status reports every 12 months until construction and mitigation are completed.

- Justification - Ecology has independent state authority to ensure protection of state water quality. Ecology must be aware of when a project starts and ends and whether there are any issues. This allows Ecology to evaluate compliance with the state water quality requirements.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.120, Chapter 173-201A WAC, WAC 173-201A-300 - 330, Chapter 173-204 WAC, and WAC 173-225-010.

C. Timing

1. This WQC Order is effective upon issuance of the U.S. Corps of Engineers (Corps) permit for this project and will remain valid until the Project Proponent meets all its requirements and conditions.

- Justification – Certifications are required for any license or permit that authorizes an activity that may result in a discharge or fill material into waters. This WQC Order is not valid until the Federal agency issues a permit. Additionally, Ecology needs to be able to specify how long the WQC Order will be in effect.

- Citation – Chapter 90.48 RCW, Chapter 173-201A WAC, and WAC 173-225-010.

2. The following in-water work windows apply to the project:

a. All activities within the wetted perimeter of Stream Z may be conducted between June 16 to September 15 of any year.

- Justification - This condition is reaffirming the project will take place during a time period that will not harm fish or other aquatic species.

- Citation - Chapter 77.55 RCW, Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300, WAC 173-201A-330, WAC 173-225-010, and Chapter 220-660 WAC.

D. Water Quality Monitoring and Criteria

1. This WQC Order does not authorize the Project Proponent to exceed applicable water quality standards beyond the limits established in Chapter 173-201A WAC, except as authorized by this WQC Order.

    - Justification - This condition ensures compliance with water quality standards to protect surface waters of the state. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

2. For in-water activities within fresh waters (including wetlands) turbidity shall not exceed 5 NTU over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and prevent exceedances of the water quality standards that protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

3. The Project Proponent shall conduct water quality monitoring as described in the approved Water Quality Monitoring Plan, Maralco, identified in Table 1 (hereafter referred to as the WQMP).

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and prevent exceedances of the water quality standards that protect aquatic life and beneficial uses.

    - Citation - RCW 90.48, RCW 90.48.030, Chapter 173-201A WAC, 173-201A-300-330 and WAC 173-225-010.

4. If water quality exceedances for turbidity are observed outside the point of compliance, work shall cease immediately and the Project Proponent or the contractor shall assess the cause of the water quality problem and take immediate action to stop, contain, and correct the problem and prevent further water quality turbidity exceedances.

- Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and prevent exceedances of the water quality standards that protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

5. Visible turbidity anywhere beyond the temporary area of mixing (point of compliance) from the activity, shall be considered an exceedance of the standard.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and prevent exceedances of the water quality standards that protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

6. Monitoring results shall be submitted monthly to Ecology's Federal Permit Manager, per condition A.2.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and prevent exceedances of the water quality standards that protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

7. Ecology may ask or could use its discretionary authority to require the Project Proponent to provide mitigation and/or additional monitoring if the monitoring results indicate that the water quality standards have not been met.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution and ensure that aquatic life and beneficial uses are protected.

    - Citation - RCW 90.48, RCW 90.48.010, RCW 90.48.030, RCW 90.48.080, RCW 90.48.120, Chapter 173-201A WAC, 173-201A-300-330 WAC, and Chapter 173-204 WAC.

E. Construction

General Conditions

1. All work in and near waters of the state shall be conducted to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices (BMPs) suitable to prevent exceedances of state water quality standards shall be in place before starting maintenance and shall be maintained throughout the duration of the activity.

    - Justification - Disturbed areas without appropriate BMPs and construction methods can discharge excess sediment to waters of the state and degrade water quality. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, Chapter 90.48.030 RCW, Chapter 90.48.080 RCW, Chapter 173-201A WAC, Chapter 173-201A-300-330 WAC, Chapter 173-204-120 WAC, and Chapter 173-225-010 WAC.

2. All clearing limits, stockpiles, staging areas, and trees to be preserved shall clearly be marked prior to commencing construction activities and maintained until all work is completed for each project.

    - Justification -Ensures that the project proponent preserves sensitive areas from discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

3. No stockpiling or staging of materials shall occur at or below the OHWM of any waterbody.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

4. The Project Proponent shall obtain and comply with the conditions of the Construction Stormwater General Permit (National Pollutant Discharge Elimination System - NPDES) issued for this project.

- Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation – 40, Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, RCW 90.48.260, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

5. Within the project limits[1] all environmentally sensitive areas including, but not limited to, wetlands, wetland buffers, shoreline riparian buffers and mitigation areas shall be fenced with high visibility construction fencing (HVF), prior to commencing construction activities. Construction activities include equipment staging, materials storage, and work vehicle parking. Note: This condition does not apply to activities such as pre-construction surveying and installing HVF and construction zone signage.

   a. If the project will be constructed in stages[2] a detailed description and drawings of the stages shall be sent to Ecology for review at least 20 days prior to placing HVF.

   b. Condition 5.a. shall apply to each stage.

   c. All field staff shall be trained to recognize HVF, understand its purpose and properly install it in the appropriate locations.

   d. HVF shall be maintained until all work is completed for each project or each stage of a staged project.

      - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

      - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

6. No petroleum products, fresh concrete, lime or concrete, chemicals, or other toxic or deleterious materials shall be allowed to enter waters of the state.

[1] Project limits include mitigation sites, staging areas, borrow sources, and other sites developed or used to support project construction.
[2] A stage is part of a project that has been separated into at least two distinct areas to be built during separate timeframes.

- Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

7. All construction debris, excess sediment, and other solid waste material shall be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.

    - Justification - Ecology must be assured that the Project Proponent is managing and disposing of material to protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

8. All equipment being used below the ordinary high water mark shall utilize biodegradable hydraulic fluid.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

9. Applicant shall ensure that fill (soil, gravel, or other material) placed for the proposed project does not contain toxic materials in toxic amounts.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300-330, WAC 173-204-120, and WAC 173-225-010.

10. Work within waters of the state shall be conducted in the dry or during periods of low flow to the extent practicable.

- Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300-330, WAC 173-204-120, and WAC 173-225-010.

11. Temporary cofferdams, bladder dams, super sack dams, floating turbidity curtains, and bypasses used to divert water around the work area shall be in place prior to initiation of work below the OHWM. These shall be properly deployed and maintained in order to minimize turbidity and re-suspension of sediment.

    - Justification - This condition ensures containment and limits movement of sediment that could cause water quality exceedances. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300-330, WAC 173-204-120, and WAC 173-225-010.

12. To minimize sediment releases, re-introduction of water into the isolated work area shall be done gradually, and at a rate not higher than the normal flow.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300-330, WAC 173-204-120, and WAC 173-225-010.

Equipment and Maintenance

13. Staging areas will be located a minimum of 50 feet and, where practical, 200 feet, from waters of the state, including wetlands, unless otherwise requested by the project proponent and authorized by Ecology.

    - Justification - Requiring a minimum setback ensures that material will not end up in waters of the state. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

14. Equipment used for this project shall be free of external petroleum-based products while used around the waters of the state, including wetlands. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and the undercarriage of equipment prior to its use around waters of the state, including wetlands.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

15. No equipment shall enter, operate, be stored or parked within any sensitive area except as specifically provided for in this WQC Order.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

16. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 173-200, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

17. Wash water containing oils, grease, or other hazardous materials resulting from washing of equipment or working areas shall not be discharged into state waters. The Project Proponent shall set up a designated area for washing down equipment.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

18. A separate area shall be set aside, which does not have any possibility of draining to surface waters, for the wash-out of concrete delivery trucks, pumping equipment, and tools.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

Dewatering

19. Turbid dewatering water associated with in-water work shall not be discharged directly to waters of the state, including wetlands. Turbid dewatering water shall be routed to an upland area for on-site or off-site settling.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

20. Clean dewatering water associated with in-water work that has been tested and confirmed to meet water quality standards may be discharged directly to waters of the state including wetlands. The discharge outfall method shall be designed and operated so as not to cause erosion or scour in the stream channel, banks, or vegetation.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

21. All equipment associated with dewatering activities shall be properly operated and maintained.

    - Justification - Maintained equipment is less likely to fail or leak pollutants. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

Culvert Work and Stream Bypass

22. All culvert work shall be conducted in the dry or in isolation from stream flow.

    - Justification - This condition would limit re-suspension of sediment that could cause water quality exceedances. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

23. Stream flow isolation work shall not scour the stream channel or banks of the water body in which the work is being done.

    - Justification - Scour and erosion could cause long term instability of the project and contribute to water quality impacts. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

24. To minimize sediment releases into downstream water, water reintroduced to the channel shall be done gradually and at a rate not exceeding the normal stream flow.

    - Justification - Maintaining natural stream flow rate is important for maintaining beneficial uses and preventing water quality impacts. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

25. Culverts shall be installed to avoid inlet scouring and prevent downstream bank erosion.

    - Justification - Scour and erosion could cause long term instability of the project and contribute to water quality impacts. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

26. Fill associated with culvert installation shall be protected from erosion to the 100-year peak flow.

    - Justification - Erosion could cause long term instability of the project and contribute to water quality impacts. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

Demolition

27. No structural material may enter waters of the state during demolition activities.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

28. All excavated sediment shall be disposed upland in an approved disposal site, unless otherwise authorized by this WQC Order.

    - Justification - - Ecology must be assured that the Project Proponent is managing and disposing of sediment to protect water quality and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

Bank Stabilization

29. Prior to returning stream flow to the de-watered work area, all proposed bank protection measures shall be in place.

    - Justification - Unprotected banks could erode, causing bank instability and contribute to water quality impacts. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

Ground Improvements

30. Ground improvement activities shall not cause exceedance of water quality standards.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

31. All operations shall be conducted in a manner that minimizes the disturbance and siltation of adjacent waters and prevents the accidental discharge of petroleum products, chemicals or other toxic or deleterious substances into state waters.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, and WAC 173-225-010.

32. Soil/sediment contamination is known to be present within the project site. Contaminated soil/sediment shall be managed as required by the Ecology's Toxic Cleanup Program via a Cleanup Action Plan or as outlined within an Agreed Order. Contact Kim Vik at kim.vik@ecy.wa.gov or (206) 556-5258 with any questions.

    - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation – Chapter 70.105D RCW, Chapter 90.48 RCW, RCW 90.48.030, Chapter 173-200 WAC, Chapter 173-201A WAC, WAC 173-201A-300 - 330, Chapter 173-204 WAC, and WAC 173-225-010.

33. Notify Ecology of the soil disposal site location, per Condition A.2. Contaminated soils shall be managed and disposed of in accordance with state and local regulations.

    - Justification - Ecology must be assured that the Project Proponent is managing and disposing of sediment or soil to protect water quality and beneficial uses.

- Citation - Chapter 70.105D RCW, Chapter 90.48 RCW, RCW 90.48.030, Chapter 173-200 WAC, Chapter 173-201A WAC, WAC 173-201A-300 - 330, Chapter 173-204 WAC. WAC 173-225-010.

F. Wetland and Aquatic Resource Mitigation Conditions

1. The Project Proponent shall mitigate wetland impacts as described in the Conceptual Mitigation Plan, Maralco (hereafter called the "Mitigation Plan") identified in Table 1, or as required by this Order.

    - Justification - Alteration of water quality necessitates the use of mitigation as a method of controlling pollution. When adequate mitigation is provided, the impacts are not considered significant enough to water quality, at least in the long-term. The water quality standards, along with mitigation, protect wetlands as well as permitting some level of degradation where unavoidable or necessary.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

2. The Project Proponent shall submit any proposed changes to the Mitigation Plan in writing to Ecology (see A.2) for review, as described in the Mitigation Plan before implementing the changes.

    - Justification - When adequate mitigation is provided, the water quality impacts are offset and not considered significant, at least in the long-term. Changes to impacts or mitigation warrant review to ensure adequate mitigation is provided.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, RCW 47.85.040, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

3. The Project Proponent shall mitigate wetland impacts as described in Mitigation Plan identified in Table 1, or as required by this WQC Order.

    - Justification - Alteration of water quality necessitates the use of mitigation as a method of controlling pollution. When adequate mitigation is provided, the impacts are not considered significant enough to water quality, at least in the long-term. The water quality standards, along with mitigation, protect wetlands as well as permitting some level of degradation where unavoidable or necessary.

    - Citation - 33 CFR 332, 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

4. The Project Proponent shall obtain a Statement of Sale from the Sponsor as documentation of purchase of 3.27 credits for this impact project. The Project Proponent shall submit a copy of the Statement of Sale to Ecology (see A.2) within 60 days of receipt or before impacting wetlands, whichever is sooner for the debit project. Documentation from the Sponsor shall include the Ecology Order number, Order issuance date, description of mitigation credits purchased, signatures from the Sponsor and the Project Proponent.

    - Justification - This condition is necessary to ensure the compensatory mitigation was actually provided by the in-lieu-fee program.

    - Citation – 33 CFR 332, 40 CFR 131.12, 40 CFR 230, subpart J, RCW 47.85.040, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), and WAC 173-201A-300.

5. Unless otherwise authorized by this Order, the Project Proponent shall complete the purchase of credits before impacting wetlands. Otherwise, Ecology may require the Project Proponent to provide additional compensation to account for additional temporal loss of wetland functions.

    - Justification - Mitigation that is not emplaced concurrent with impacts will result in degradation of existing beneficial uses of the wetlands affected by the proposed action through temporal loss of functions.

    - Citation - 33 CFR 332, 40 CFR 131.12, 40 CFR 230, subpart J, RCW 47.85.040, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010 WAC.

6. The Project Proponent shall have a qualified wetland professional at the wetland mitigation site to supervise during construction and planting.

    - Justification - Mitigation success is critical to achieving control of pollution. Supervision of qualified professionals helps ensure success.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

Implementation

7. Unless otherwise authorized by this WQC Order, the Project Proponent shall begin the compensatory mitigation project before, or concurrently with, impacting wetlands. Otherwise, Ecology may require the Project Proponent to provide additional compensation to account for additional temporal loss of wetland functions.

- Justification - Mitigation that is not emplaced concurrent with impacts will result in degradation of existing beneficial uses of the wetlands affected by the proposed action.

- Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC,WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

8. If the mitigation site(s) cannot be completed within 13 months of the date of this Order, the Project Proponent shall inform Ecology, in writing, of the status of:

   a. Maralco Industrial Redevelopment.

   b. Maralco Industrial Site, Wetland A and Stream Z.

      With the:

   c. Reason for the delay.

   d. Expected date of completion.

   The Project Proponent shall submit an updated written notification every 12 months thereafter until the Maralco Industrial Redevelopment project and Wetland A and Stream Z are complete.

   - Justification - Mitigation that is not emplaced concurrent with impacts will result in degradation of existing beneficial uses of the wetlands affected by the proposed action.

   - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC,WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

9. The Project Proponent shall ensure that all excess excavated site material is disposed of in an appropriate location outside of wetlands or their buffers and landward of the 100-year floodplain, unless otherwise provided for in the Mitigation Plan.

   - Justification - Placement of excess material in wetlands, buffers or floodplains may adversely affect the functions of the wetlands onsite and contribute to a failure of the mitigation plan. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

10. The Project Proponent shall ensure that no material is stockpiled within existing wetlands or their buffers at the wetland mitigation site(s) at any time, unless otherwise provided for in the Mitigation Plan.

    - Justification - Placement of excess material in wetlands or buffers may adversely affect the functions of the wetlands onsite and contribute to a failure of the mitigation plan. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

11. The Project Proponent shall ensure that no construction debris is deposited within existing wetlands or their buffers at the wetland mitigation site(s) at any time, unless otherwise provided for in the Mitigation Plan.

    - Justification - Placement of construction debris in wetlands or buffers may adversely affect the functions of the wetlands onsite and contribute to a failure of the mitigation plan. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

12. The Project Proponent shall not use polyacrylamide at the mitigation site(s).

    - Justification – Polyacrylamide breaks down in soils and in the environment to acrylamide, which is a compound of concern and pollutant that would adversely affect water quality. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation – 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

13. The Project Proponent shall not use hay or straw on exposed or disturbed soil at the mitigation site(s), unless otherwise provided for in the Mitigation plan.

- Justification - Straw can be a source of noxious weeds which are a subset of invasive species that have been classified according to the seriousness of the threat they pose. Governments and landowners are required to control them. Noxious weeds can inhibit the success of a mitigation site.

- Citation - WAC 16-228-1400, WAC 173-225-010, and WAC 173-226-110 WAC.

14. Aquatic herbicides can be used or applied only by certified applicators or persons under the direct supervision of a certified applicator, and only for those uses covered by the certified applicator's license category.

    a. Applicators are required to be permitted under Ecology's Noxious Weed Control Permit.

    b. Applicators shall comply with all conditions of the Noxious Weed Control Permit.

    - Justification - Noxious weeds are a subset of invasive species that have been classified according to the seriousness of the threat they pose. Governments and landowners are required to control them. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation – WAC 16-228-1400, WAC 173-225-010, and WAC 173-226-110.

15. If weed-barrier fabric is used on the site, the Project Proponent shall use only water-permeable, fully biodegradable, non-toxic weed-barrier fabric for the entire-site and/or individual plant weed control. If use of non-biodegradable plastic weed-barrier fabric is proposed in the mitigation plan approved by Ecology, it shall be used only at the base of individual plants and shall be removed before it starts to break down, before it interferes with plant growth, or before the end of the monitoring period, whichever comes first.

    - Justification - The establishment of hydrophytic vegetation and substrate characteristics, is a necessary element of the mitigation plan and is promoted by weed suppression. Suppression of weeds is necessary until hydrophytic vegetation is established, after which time the presence of the fabric will hinder vegetation establishment and may affect mitigation success.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC,WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

16. If seeding is used for temporary erosion control, it must be a seed mix consisting of native, annual, non-invasive plant species.

- Justification - Establishment of native species are a necessary element of wetland mitigation. Planting mixes must not contain non-native, invasive species, including noxious weeds since they will inhibit the success of the mitigation site and plan. Noxious weeds are a subset of invasive species that have been classified according to the seriousness of the threat they pose. Governments and landowners are required to control them.

- Citation - 40 CFR 131.12, Chapter 16-228-1400 WAC, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, WAC 173-225-010, and WAC 173-226-110.

17. The Project Proponent shall not use solid or mesh plant protector tubes at the mitigation site(s) unless otherwise provided for in the Mitigation Plan.

    - Justification - This requirement provides assurance that the mitigation site has the best chance at being successful in achieving wetland conditions. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), and WAC 173-201A-300.

18. The Project Proponent shall place signs at the mitigation area's(s') boundaries, including buffers, every 100 feet to mark the area as {a} wetland mitigation site(s).

    - Justification - This requirement provides assurance that the mitigation site has the best chance at being successful in achieving wetland conditions.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), and WAC 173-201A-300.

19. Upon completion of site grading and prior to planting, the Project Proponent shall submit to Ecology written confirmation (email or signed letter) from a surveyor or project engineer that the finished grades are consistent with the approved Mitigation Plan or subsequent Ecology-approved changes. The confirmation should also indicate how final elevations were determined.

    - Justification - This requirement provides assurance that the mitigation site has the best chance at being successful in achieving wetland conditions.

- Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

20. After completing construction and planting of the mitigation sites(s), the Project Proponent shall submit to Ecology (see A.2) an as-built report, including plan sheets, documenting site conditions at Year Zero. The as-built report must:

    a. Be submitted within 90 days of completing construction and planting.

    b. Include the information listed in Attachment B (Information Required for As-built Reports).

    c. Include documentation of the recorded legal site protection mechanism required in Condition F.21.

        - Justification - This condition is necessary to ensure the mitigation site was constructed and planted per the approved mitigation plan and serves as a baseline for monitoring performance standards, which must be met to ensure success of the mitigation site.

        - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

21. The Project Proponent shall follow the steps below to record a deed notification for the Maralco Industrial Redevelopment Wetland A and Stream Z mitigation site:

    a. Send a draft deed notification to Ecology for review prior to recording.

    b. Record, on the mitigation site property deed, a description of the mitigation area identified in the final mitigation plan and a site map from the final wetland mitigation plan or as-built report showing the location of wetlands and their buffers.

    c. Record these documents with the County Recording Office, Registrar of Deeds, or other official responsible for maintaining records for, or interest in, real property.

    d. Submit proof of this recorded documentation to Ecology (per condition A.2) with the As-built report (see F.20).

        - Justification - The mitigation plan needs to ensure that measures will be taken to protect the site for the long term to ensure that wetland functions and values are replaced, thereby preserving beneficial uses and offsetting pollution.

- Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

Monitoring and Maintenance

22. The Project Proponent shall water and maintain all mitigation site plantings so as to meet the Mitigation Plan's performance standards. If an irrigation system is installed, it shall be removed by the end of year three unless otherwise provided for in the Mitigation Plan.

    - Justification - Designing and implementing an appropriate maintenance plan is crucial to the success of a mitigation site.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

23. The Project Proponent shall monitor the mitigation site for a minimum of 10 years. The Project Proponent shall use the monitoring methods described on page(s) 24 & 25 of the Mitigation Plan.

    - Justification - A monitoring plan describes the methods used to collect and analyze data needed to show that performance standards are being met. Monitoring plans are necessary to track environmental changes at mitigation sites to ensure success of the mitigation site.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

24. The Project Proponent shall submit to Ecology (see A.2) monitoring reports documenting mitigation site conditions for years 1, 2, 3, 5, 7, and 10. The monitoring reports must:

    a. Be submitted by December 31 of each monitoring year.

    b. Include the information listed in Attachment C (Information Required for Monitoring Reports).

        - Justification- Monitoring reports track the environmental progress of the mitigation site and are necessary to track environmental changes at mitigation sites to ensure success of the mitigation site.

- Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

25. The Project Proponent shall implement the Mitigation Plan's contingency measures if the Mitigation Plan's goals, objectives, or performance standards are not being met.

    - Justification - A contingency plan is necessary in case the actions undertaken for the mitigation fail or only partially succeed. A contingency plan contains corrective measures that will be taken if monitoring indicates that performance standards are not being met. The contingency plan outlines the steps that will be taken for each performance standard if it is not met.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

26. Prior to implementing contingency measures not specified in the Mitigation Plan, the Project Proponent shall consult with Ecology regarding the contingency measures.

    - Justification - A contingency plan is necessary in case the actions undertaken for the mitigation fail or only partially succeed. A contingency plan contains corrective measures that will be taken if monitoring indicates that performance standards are not being met. The contingency plan should outline the steps that will be taken for each performance standard if it is not met.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

27. When necessary to meet the performance standards, the Project Proponent shall replace dead or dying plants with the same species, or an appropriate native plant alternative, during the current or upcoming planting season and note species, numbers, and approximate locations of all replacement plants in the subsequent monitoring report.

    - Justification - Performance standards must be met to ensure success of the mitigation site.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

28. For monitoring years five (5) and ten (10), the Project Proponent shall use the currently approved federal wetland delineation manual and appropriate regional supplement to delineate all compensatory wetlands and include delineation information (e.g., data sheets, maps, wetland size, etc.) in the monitoring reports.

    - Justification - Delineation of wetlands helps to determine if the wetland area is adequately replaced, achieving no net loss. Delineation also informs whether mitigation is on track for success or if changes need to be made.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

29. At the end of the monitoring period, the Project Proponent shall use the Credit-Debit Method to determine the achieved score for each function and include the credit scoring form and credit worksheet in the monitoring report.

    - Justification - Wetland rating will provide information regarding what wetland functions and values have been established at the mitigation site, informing whether adequate compensation has occurred.

    - Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 WAC, WAC 173-225-010, and WAC 365-190-090.

30. If the Project Proponent has not met all compensatory mitigation conditions by the end of the monitoring period, Ecology may require additional monitoring, additional mitigation, or both. Conditions include specifications in the approved Mitigation Plan, such as performance standards for the mitigation site.

    - Justification - If the mitigation site is not meeting all compensatory mitigation conditions then the water quality impacts will not be offset by the mitigation.

    - Citation - 40 CFR 131.12, 40 CFR 230, subpart J, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300 and WAC 173-225-010.

31. The Project Proponents obligation to compensate for wetland impacts under Condition F.1 is not met until the Project Proponent has received written notice from Ecology that the obligation is met.

    - Justification - If the mitigation site is not meeting all compensatory mitigation conditions then the water quality impacts will not be offset by the mitigation.

- Citation - 40 CFR 131.12, Chapter 47.85.040 RCW, Chapter 90.48 RCW, Chapter 90.54 RCW, Chapter 90.74 RCW, Chapter 173-201A WAC, WAC 173-201A-260 (3)(i-ii), WAC 173-201A-300, and WAC 173-225-010.

G. Emergency/Contingency Measures

1. The Project Proponent shall develop and implement a spill prevention and containment plan for all aspects of this project.

   - Justification - Ecology must ensure that the Project Proponent has a plan to prevent pollution from entering waterways. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, Chapter 90.56.280 RCW, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, WAC 173-225-010, and WAC 173-303-145.

2. The Project Proponent shall have adequate and appropriate spill response and cleanup materials available on site to respond to any release of petroleum products or any other material into waters of the state.

   - Justification - Ecology must have assurance that the Project Proponent has the material readily available in WQC Order to address any spills that might occur to protect waters of the state. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, RCW 90.56.280, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, WAC 173-225-010, and WAC 173-303-145.

3. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.

   - Justification - Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

   - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, RCW 90.56.280, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, WAC 173-225-010, and WAC 173-303-145.

4. Work causing distressed or dying fish and discharges of oil, fuel, or chemicals into state waters or onto land with a potential for entry into state waters is prohibited. If such work, conditions, or discharges occur, the Project Proponent shall notify Ecology's Federal Permit Manager, per condition A2, and immediately take the following actions:

    a. Cease operations at the location of the non-compliance.

    b. Assess the cause of the water quality problem and take appropriate measures to correct the problem and prevent further environmental damage.

    c. In the event of a discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of any spilled material and used cleanup materials.

    d. Immediately notify Ecology's Regional Spill Response Office and the Washington State Department of Fish and Wildlife with the nature and details of the problem, any actions taken to correct the problem, and any proposed changes in operation to prevent further problems.

    e. Immediately notify the National Response Center at 1-800-424-8802, for actual spills to water only.

        - Justification - This condition is necessary to prevent oil and hazardous materials spills from causing environmental damage and to ensure compliance with water quality requirements. The sooner a spill is reported, the quicker it can be addressed, resulting in less harm. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

        - Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, RCW 90.56.280, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, WAC 173-225-010, and WAC 173-303-145.

5. Notify Ecology's Regional Spill Response Office immediately if chemical containers (e.g. drums) are discovered on-site or any conditions present indicating disposal or burial of chemicals on-site that may impact surface water or ground water.

- Justification - Oil and hazardous materials spills cause environmental damage. The sooner a spill is reported, the quicker it can be addressed, resulting in less harm. Ecology must protect waters of the state from all discharges and potential discharges of pollution that can affect water quality to protect aquatic life and beneficial uses.

- Citation - Chapter 90.48 RCW, RCW 90.48.030, RCW 90.48.080, Chapter 90.56 RCW, RCW 90.56.280, Chapter 173-201A WAC, WAC 173-201A-300 - 330, WAC 173-204-120, WAC 173-225-010, and WAC 173-303-145.

Your right to appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do all of the following within 30 days of the date of receipt of this Order:

- File your notice of appeal and a copy of this Order with the PCHB (see filing information below). "Filing" means actual receipt by the PCHB during regular business hours as defined in WAC 371-08-305 and -335. "Notice of appeal" is defined in WAC 371-08-340.

- Serve a copy of your notice of appeal and this Order on the Department of Ecology mail, in person, or by email (see addresses below).

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC

Filing an appeal

Filing with the PCHB

For the most current information regarding filing with the PCHB, visit: https://eluho.wa.gov/ or call: 360-664-9160.

Service on Ecology

Street Addresses:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Addresses:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

Americans with Disabilities Act Information

Accommodation Requests

To request ADA accommodation including materials in a format for the visually impaired, call Ecology at 360-407-7668 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.

Contact Information

Please direct all questions about this WQC Order to:

Lori White
Department of Ecology
(564)669-1396
lori.white@ecy.wa.gov

More Information

- **Pollution Control Hearings Board Website**
  https://eluho.wa.gov
- **Chapter 43.21B RCW - Environmental and Land Use Hearings Office – Pollution Control Hearings Board**
  http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B
- **Chapter 371-08 WAC – Practice and Procedure**
  http://app.leg.wa.gov/WAC/default.aspx?cite=371-08
- **Chapter 34.05 RCW – Administrative Procedure Act**
  http://app.leg.wa.gov/RCW/default.aspx?cite=34.05

- **Chapter 90.48 RCW – Water Pollution Control**
  http://app.leg.wa.gov/RCW/default.aspx?cite=90.48

- **Chapter 173.204 WAC – Sediment Management Standards**
  http://apps.leg.wa.gov/WAC/default.aspx?cite=173-204

- **Chapter 173-200 WAC – Water Quality Standards for Ground Waters of the State of Washington**
  http://apps.leg.wa.gov/WAC/default.aspx?cite=173-200

- **Chapter 173-201A WAC – Water Quality Standards for Surface Waters of the State of Washington**
  http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A

Signature

Dated this 1st day of September, 2023, at the Department of Ecology, Lacey, Washington.

Loree' Randall, Section Manager
Federal Permitting Section
Shorelands and Environmental Assistance Program

Attachment A

Statement of Understanding
Water Quality Certification Conditions

Maralco Industrial Redevelopment

Water Quality Certification WQC Order No. 22149

As the Project Proponent for Maralco Industrial Redevelopment project, I have read and understand the conditions of Washington State Department of Ecology WQC Order No. 22149, and any permits, plans, documents, and approvals referenced in the WQC Order. I have and will continue to ensure that all project engineers, contractors, and other workers at the project site with authority to direct work have read and understand the conditions of this WQC Order and any permits, plans, documents, and approvals referenced in the WQC Order.

_____	_____
Signature	Date
_____	_____
Title	Phone

_____
Company

Attachment B

Information Required for As-built Reports

Maralco Industrial Redevelopment

Ecology Order No. 22149

And

Corps Reference No. NWS-2022-0778

Ecology requires the following information for as-built reports submitted under this Order. Ecology will accept additional information that may be required by other agencies.

Background Information

1. Project name.

2. Ecology Order number and the Corps reference number.

3. Name and contact information of the person preparing the as-built report. Also, if different from the person preparing the report, include the names of:

    a. The Project Proponent

    b. The landowner

    c. Wetland professional on site during construction of the mitigation site(s).

4. Date the report was produced.

Mitigation Project Information

5. Brief description of the **final** mitigation project with any changes from the approved plan made during construction. Include:

    a. Actual acreage of Cowardin classes and mitigation type(s) (re-establishment, rehabilitation, creation, enhancement, preservation, upland, buffers).

    b. Important dates, including:

        01. Start of project construction.

        02. When work on the mitigation site began and ended.

03. When different activities such as grading, removal of invasive plants, installing plants, and installing habitat features began and ended.

6. Description of any problems encountered and solutions implemented (with reasons for changes) during construction of the mitigation site(s).

7. List of any follow-up actions needed, with a schedule.

8. Vicinity map showing the geographic location of the site(s) with landmarks.

9. Mitigation site map(s), 8-1/2" x 11" or larger, showing the following:

    a. Boundary of the site(s).

    b. Topography (with a description of how elevations were determined).

    c. Installed planting scheme (quantities, densities, sizes, and approximate locations of plants, as well as the source(s) of plant material).

    d. Location of habitat features.

    e. Location of permanent photo stations and any other photos taken.

Include the month and year when each map was produced or revised. The site map(s) should reflect on-the-ground conditions after the site work is completed.

10. Photographs taken at permanent photo stations and other photographs, as needed. Photos must be dated and clearly indicate the direction from which each photo was taken. Photo pans are recommended.

11. A copy of any deed notifications, conservation easements, or other approved site protection mechanism.

Attachment C

Information Required for Monitoring Reports

Maralco Industrial Redevelopment

Ecology Order No. 22149

And

Corps Reference No. NWS-2022-0778

Ecology requires the following information for monitoring reports submitted under this Order. Ecology will accept additional information that may be required by other agencies.

Background Information

1. Project name.
2. Ecology Order number and the Corps reference number.
3. Name and contact information of the person preparing the monitoring report. Also, if different from the person preparing the report, include the names of:
    a. The Project Proponent
    b. The landowner
    c. The party responsible for the monitoring activities.
4. Dates the monitoring data were collected.
5. Date the report was produced.

Mitigation Project Information

6. Brief description of the mitigation project, including acreage of Cowardin classes and mitigation type(s) (re-establishment, rehabilitation, creation, enhancement, preservation, upland, buffers).
7. Description of the monitoring approach and methods. For each performance standard being measured provide the following information:
    a. Description of the sampling technique (e.g., monitoring point for soil or hydrology, line or point intercept method, ocular estimates in individually placed plots). If you are using a standardized technique, provide a reference for that method.

b. Size and shape of plots or transects.

c. Number of sampling locations and how you determined the number of sampling locations to use.

d. Percent of the mitigation area being sampled.

e. Locations of sampling (provide a map showing the locations), how you determined where to place the sampling locations (e.g., simple random sample), and whether they are permanent or temporary.

f. Schedule for sampling (how often and when).

g. Description of how the data was evaluated and analyzed.

8. Summary table(s) comparing performance standards with monitoring results and whether each standard has been met.

9. Discussion of how the monitoring data were used to determine whether the site(s) is meeting performance standards.

10. Goals and objectives and a discussion of whether the project is progressing toward achieving them.

11. Summary, including dates, of management actions implemented at the site(s), for example, maintenance and corrective actions.

12. Summary of any difficulties or significant events that occurred on the site that may affect the success of the project.

13. Specific recommendations for additional maintenance or corrective actions with a timetable.

14. Photographs taken at permanent photo stations and other photographs, as needed. Photos must be dated and clearly indicate the direction the camera is facing. Photo pans are recommended.

15. Vicinity map showing the geographic location of the site(s) with landmarks.

16. Mitigation site map(s), 8-1/2” x 11” or larger, showing the following:

    a. Boundary of the site(s).

    b. Location of permanent photo stations and any other photos taken.

c. Data sampling locations, such as points, plots, or transects.

d. Approximate locations of any replanted vegetation.

e. Changes to site conditions since the last report, such as areas of regrading, a shift in the location of Cowardin classes or habitat features, or a change in water regime.

Include the month and year when each map was produced or revised. The site map(s) should reflect on-the-ground conditions during the most recent monitoring year.

US Army Corps of Engineers ®
Seattle District

CERTIFICATE OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

Permit Number: NWS-2022-778

Name of Permittee: Bridge Development Partners, LLC

Date of Issuance: April 25, 2024

Upon completion of the activity authorized by this permit, please check the applicable boxes below, date and sign this certification, and return it to the following email or mailing address:

NWS.Compliance@usace.army.mil OR

Department of the Army
U.S. Army Corps of Engineers Seattle District, Regulatory Branch
4735 E. Marginal Way S, Bldg 1202
Seattle, Washington 98134-2388

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of your authorization, your permit may be subject to suspension, modification, or revocation.

☐ The work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of this permit.

Date work complete: _____

☐ Photographs and as-built drawings of the authorized work (OPTIONAL, unless required as a Special Condition of the permit).

☐ If applicable, the mitigation required (e.g., construction and plantings) in the above-referenced permit has been completed in accordance with the terms and conditions of this permit (not including future monitoring).

Date work complete: _____ ☐N/A

☐ Photographs and as-built drawings of the mitigation (OPTIONAL, unless required as a Special Condition of the permit).

☐ Provide phone number/email for scheduling site visits (must have legal authority to grant property access).

Printed Name: _____

Phone Number: _____ Email: _____

Printed Name: _____

Signature: _____

Date: _____

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH, BLDG 1202
SEATTLE, WA 98134-2388

Regulatory Branch April 25, 2024

Bridge Development Partners, LLC
Mr. Kyle Siekawitch
10655 Northeast 4th Street, Suite 500
Bellevue, Washington 98004

Reference: NWS-2022-778
Bridge Development
Partners, LLC

Dear Mr. Siekawtich:

We have reviewed your application to excavate no more than 500 cubic yards of contaminated sediment from 13,000 square feet of wetland and ditches, place fill within no more than 0.47 of an acre of wetland, and relocate 930 lineal feet of a stream to clean up contaminated sediment and develop and industrial site at Kent, King County, Washington. Based on the information you provided to us, Nationwide Permits (NWP) 38, *Cleanup of Hazardous and Toxic Waste* (Federal Register December 27, 2021 Vol. 86, No. 245) and 39, *Commercial and Institutional Developments* (Federal Register January 13, 2021, Vol. 86, No. 8) authorize your proposal as depicted on the enclosed drawings dated April 24, 2024.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed *NWP 38 Terms and Conditions*, *NWP 39 Terms and Conditions* and the following special conditions:

a. The permittee must install and maintain sediment and erosion controls during construction at the site until all disturbed soils have been revegetated or otherwise stabilized.

b. You shall implement and abide by the document titled “Conceptual Mitigation Plan” revision dated September, 2022.

c. A status report on the implementation of the authorized work and on wetland restoration and enhancement of wetlands and buffers shall be submitted annually to the U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch by December 31st each year until mitigation construction is complete as determined by the Corps. This report must prominently display the reference number NWS-2022-778.

d. A mitigation construction report and as-built drawings shall be submitted upon completion of mitigation work, in lieu of the status report described in Special Condition "c." This report must be submitted to the U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch for review and approval and must prominently display the reference number NWS-2022-778. The year mitigation construction is completed, as determined by the Corps, represents Year 0 for mitigation monitoring.

e. Mitigation monitoring reports shall be submitted annually for monitoring years 1, 2, 3, 5, 7, and 10 to the U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch by December 31st of each monitoring year. Year 1 monitoring will occur at least one year after completion of the mitigation site work as determined by the Corps. All reports must prominently display the reference number NWS-2022-778.

f. The fully executed Conservation Easement for the mitigation site shall be recorded with the Registrar of Deeds or other appropriate official charged with maintaining records on real property. A copy of the fully executed Conservation Easement and proof of recording shall be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch prior to project construction. The submittal must prominently display the reference number NWS-2022-778

g. Your responsibility to complete the required compensatory mitigation as set forth in Special Conditions "b" through "f" will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers Seattle District, Regulatory Branch.

We have reviewed your project pursuant to the requirements of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act and the National Historic Preservation Act. We have determined this project complies with the requirements of these laws provided you comply with all of the permit general and special conditions.

A conditioned Water Quality Certification (WQC) (Order Number 22149) dated September 1, 2023 and Coastal Zone Management (CZM) consistency determination decision dated March 27, 2024, have been issued by the Washington State Department of Ecology for your project and is enclosed. You must comply with the conditions specified in the WQC and CZM decision for this NWP authorization to be valid.

You have not requested a jurisdictional determination for this proposed project. If you believe the U.S. Army Corps of Engineers does not have jurisdiction over all or portions of your project, you may request a preliminary or approved jurisdictional

determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

Our verification of this NWP authorization is valid until March 14, 2026, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work for the NWP authorization has not been completed by that date and you have commenced or are under contract to commence this activity before March 14, 2026, you will have until March 14, 2027, to complete the activity under the enclosed terms and conditions of this NWP. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

You are cautioned that any change in project location or plans will require that you submit a copy of the revised plans to this office and obtain our approval before you begin work. Deviating from the approved plans could result in the assessment of criminal or civil penalties.

Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit*. All compliance reports should be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch electronically at nws.compliance@usace.army.mil. Thank you for your cooperation during the permitting process. We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey. Referenced documents and information about our program are available on our website at www.nws.usace.army.mil, select “Regulatory Permit Information”. A copy of this letter with enclosures will be furnished to Mr. Jon Pickett - jon@soundviewconsultants.com. If you have any questions, please contact me at Lydia.baldwin@usace.army.mil or (360) 399-8034.

Sincerely,

Lydia Baldwin, Project Manager
Regulatory Branch

Enclosures

cc:
Ecology (ecyrefedpermits@ecy.wa.gov)

SHEET INDEX

SHEET NUMBER	SHEET TITLE	SHEET NUMBER	SHEET TITLE
1	SHEET INDEX	11	DITCH LOCATIONS ENLARGED PLAN (1/2)
2	VICINITY MAP	12	DITCH LOCATIONS ENLARGED PLAN (2/2)
3	EXISTING CONDITIONS	13	TYPICAL SECTION (1/3)
4	EXISTING CONDITIONS (AERIAL IMAGE)	14	TYPICAL SECTION (2/3)
5	PROPOSED SITE PLAN	15	TYPICAL SECTION (3/3)
6	MITIGATION PLAN	16	FLOOD PLAIN PLAN
7	PLANTING TYPICAL	17	DEMOLITION PLAN
8	PLANT SCHEDULE (1/2)	18	ROUGH GRADING, BUILDING SURCHARGE, & TESC PLAN
9	PLANT SCHEDULE (2/2)	19	SITE SECTIONS
10	DITCH LOCATIONS OVERVIEW	20	TESC NOTES & DETAILS

7730 202ND STREE
KENT, WA 98032

THE SE ¼ OF SECTION 01,
TOWNSHIP 22N, RANGE 04E, W.M.

KING COUNTY PARCEL NUMBER(S): 6315000300

LAT: 47°25'12.74" N LON: -122°14'7.87" W

REFERENCE # ----

APPLICANT:
BRIDGE DEVELOPMENT PARTNERS, LLC

PROPOSED PROJECT:
PROPOSED INDUSTRIAL
REDEVELOPMENT

IN: KENT NEAR: ----

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DATE: 04/24/2024
JOB:1582.0022
BY: MW
SCALE: AS SHOWN
SHEET: 1

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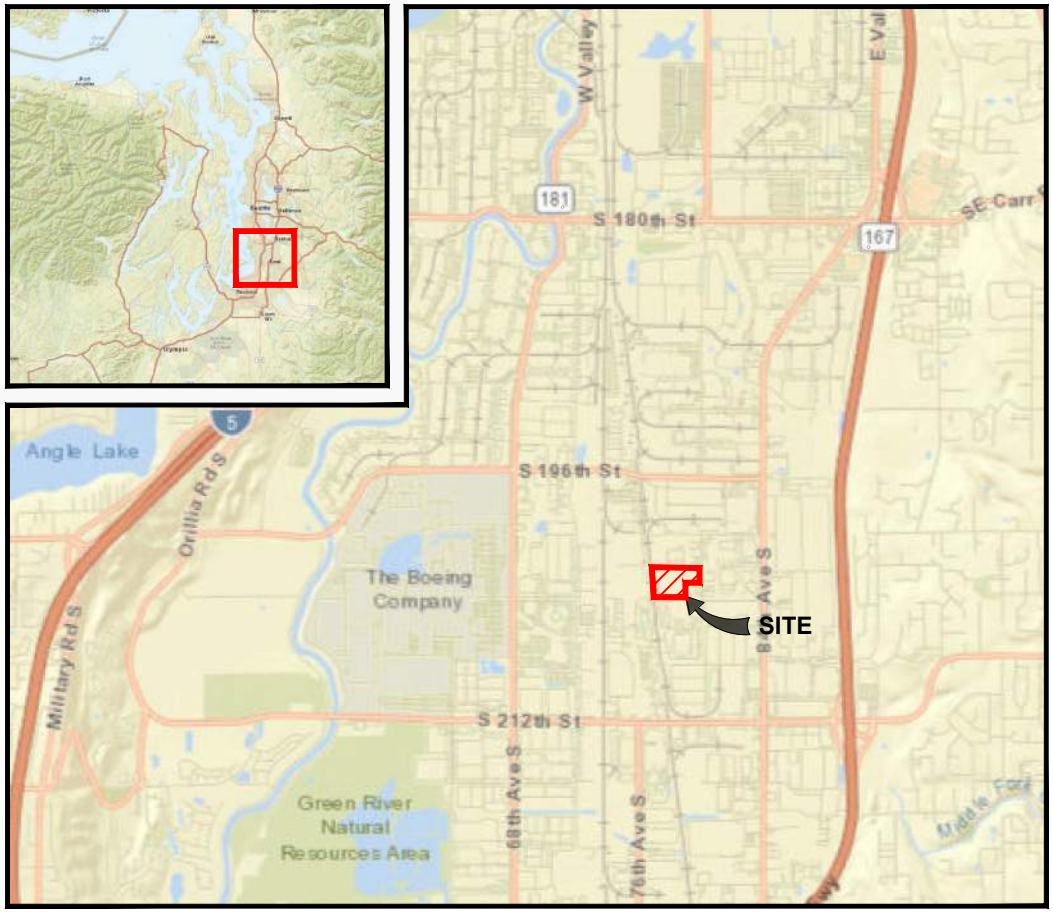
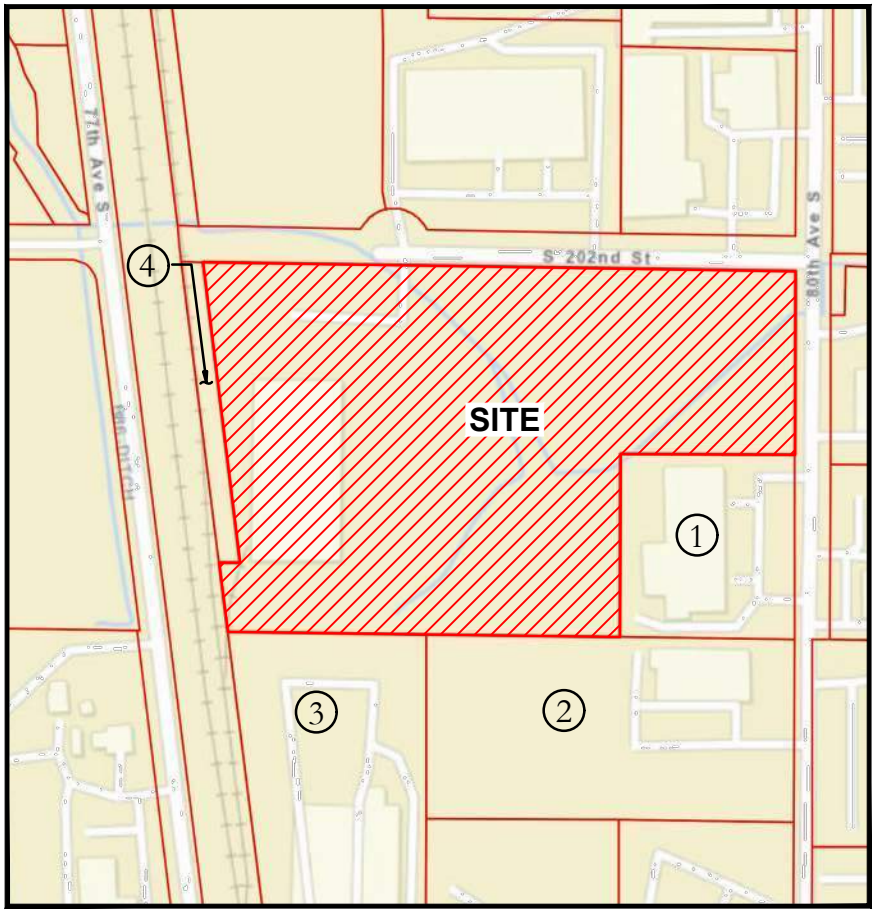
MARALCO - VICINITY



VICINITY MAP

SOURCE: ESRI, OSM, USGS



ADJACENT OWNERSHIP

SOURCE: ESRI

1. KYC LLC
2. WALMAN OPTICAL COMPANY
3. KNIGHT TRANSPORTATION INC
4. BNSF

7730 202ND STREE KENT, WA 98032	REFERENCE # ---- APPLICANT: BRIDGE DEVELOPMENT PARTNERS, LLC
THE SE ¼ OF SECTION 01, TOWNSHIP 22N, RANGE 04E, W.M.	PROPOSED PROJECT: PROPOSED INDUSTRIAL REDEVELOPMENT
KING COUNTY PARCEL NUMBER(S): 6315000300	
LAT: 47°25'12.74" N LON: -122°14'7.87" W	IN: KENT NEAR: ----

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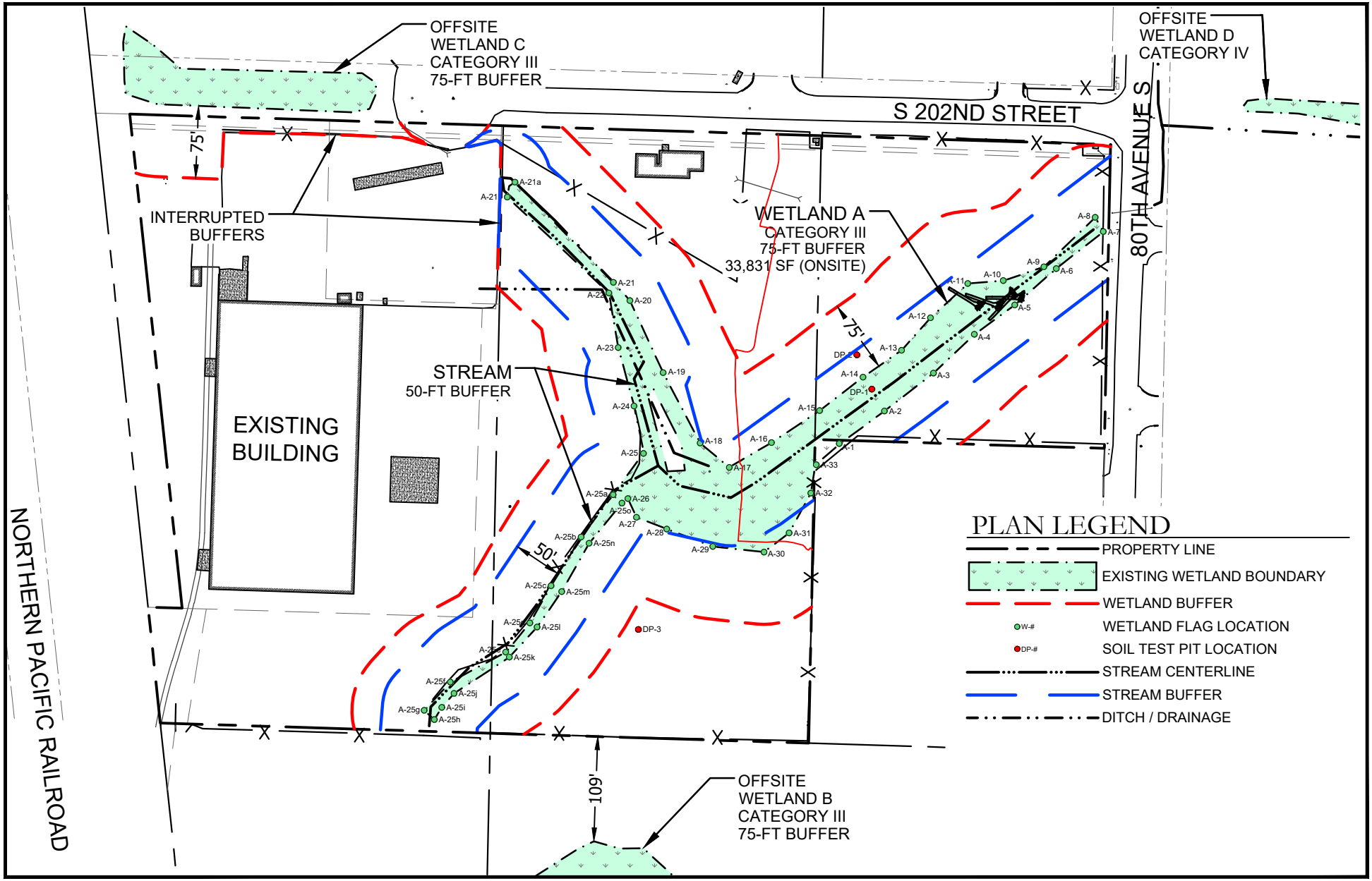
MARALCO - EXISTING CONDITIONS



0 70 140 280

GRAPHIC SCALE
1"= 140'

MARALCO
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KENT, WA 98032

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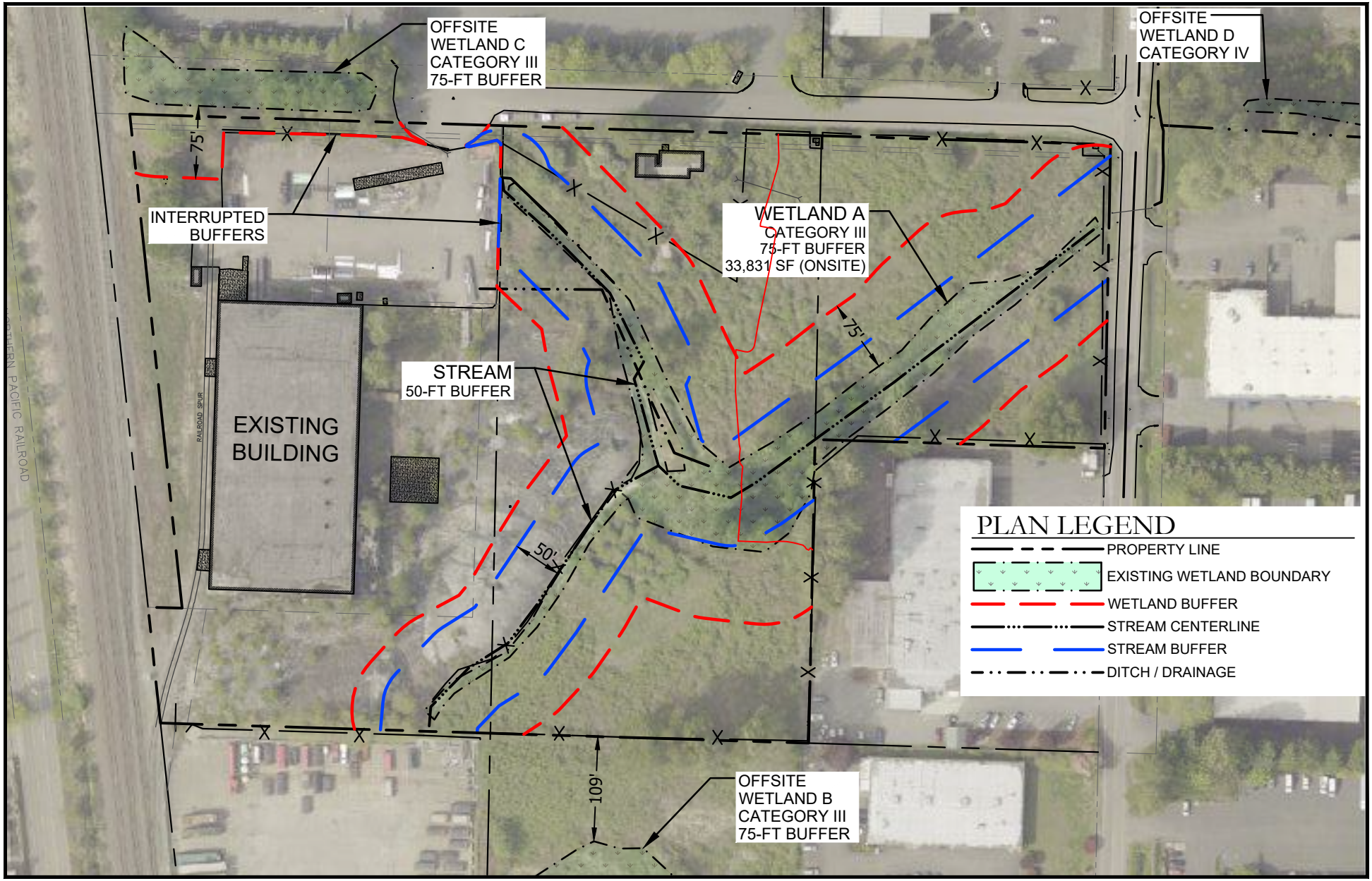
MARALCO - EXISTING CONDITIONS (AERIAL IMAGERY)



0 70 140 280

GRAPHIC SCALE
1"= 140'

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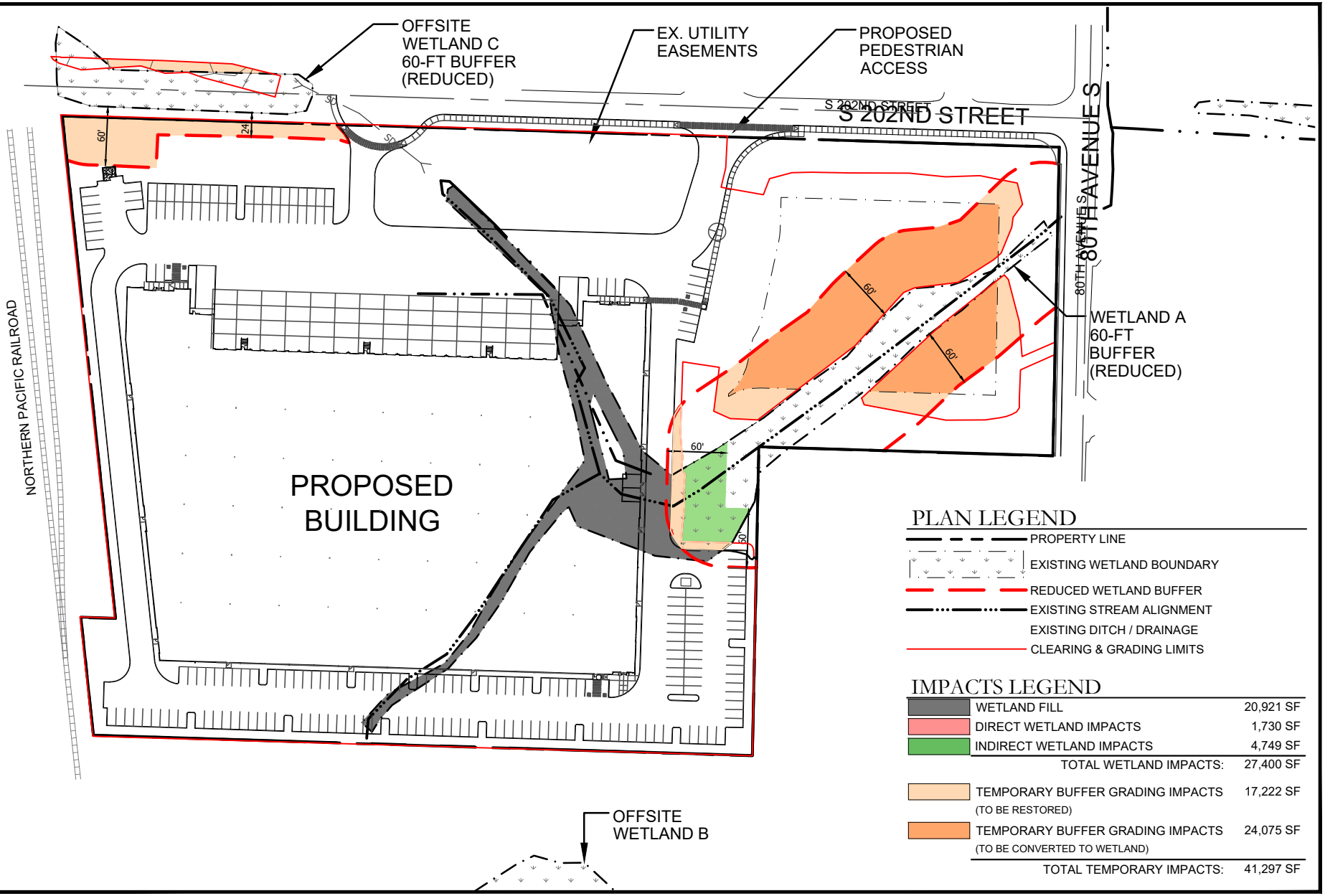
PROPOSED SITE PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- REDUCED WETLAND BUFFER
- EXISTING STREAM ALIGNMENT
- EXISTING DITCH / DRAINAGE
- CLEARING & GRADING LIMITS

IMPACTS LEGEND

WETLAND FILL	20,921 SF
DIRECT WETLAND IMPACTS	1,730 SF
INDIRECT WETLAND IMPACTS	4,749 SF
TOTAL WETLAND IMPACTS:	27,400 SF
TEMPORARY BUFFER GRADING IMPACTS (TO BE RESTORED)	17,222 SF
TEMPORARY BUFFER GRADING IMPACTS (TO BE CONVERTED TO WETLAND)	24,075 SF
TOTAL TEMPORARY IMPACTS:	41,297 SF

0 70 140 280

GRAPHIC SCALE
1"= 140'

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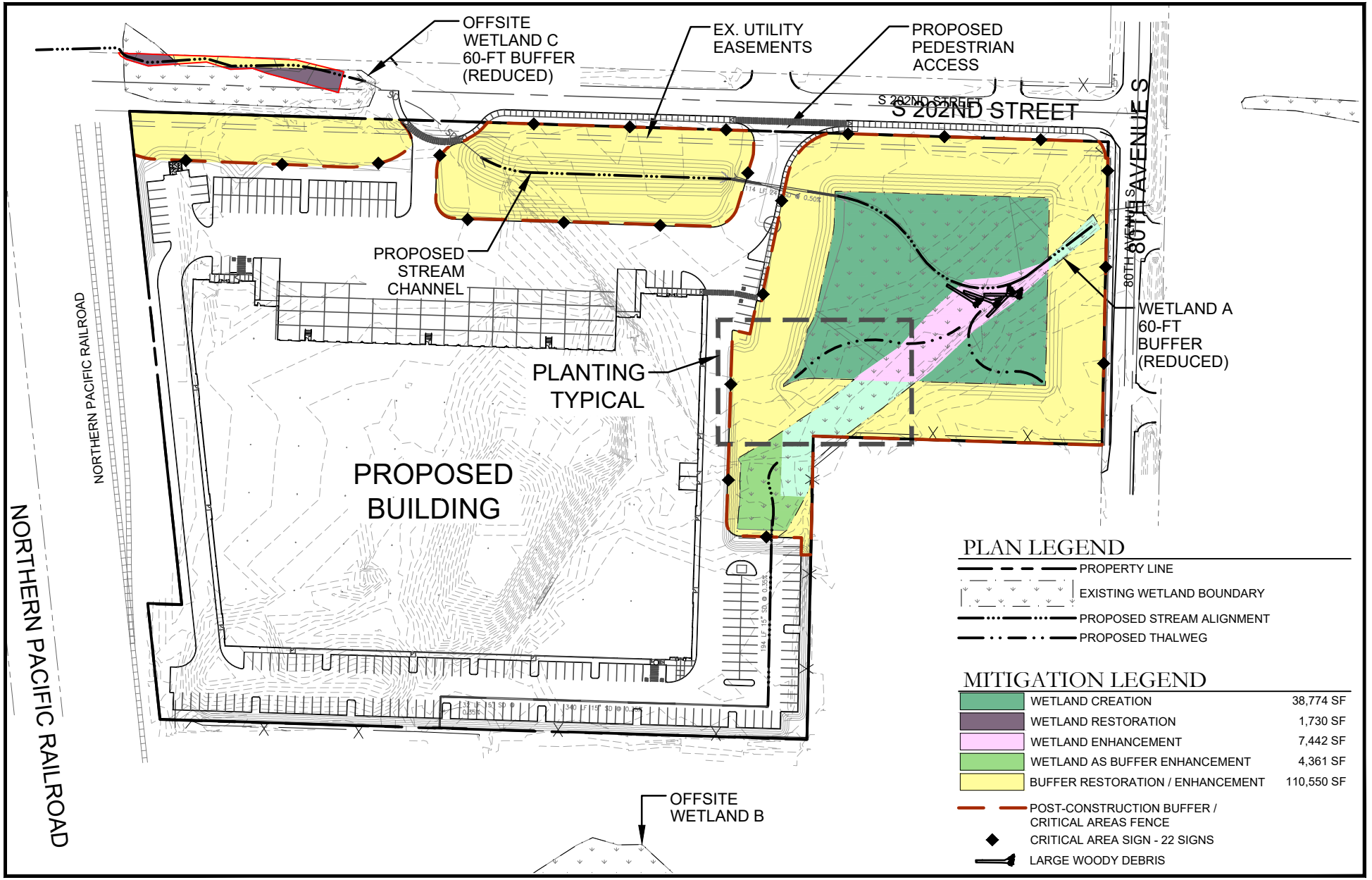
MITIGATION PLAN



0 70 140 280

GRAPHIC SCALE
1"= 140'

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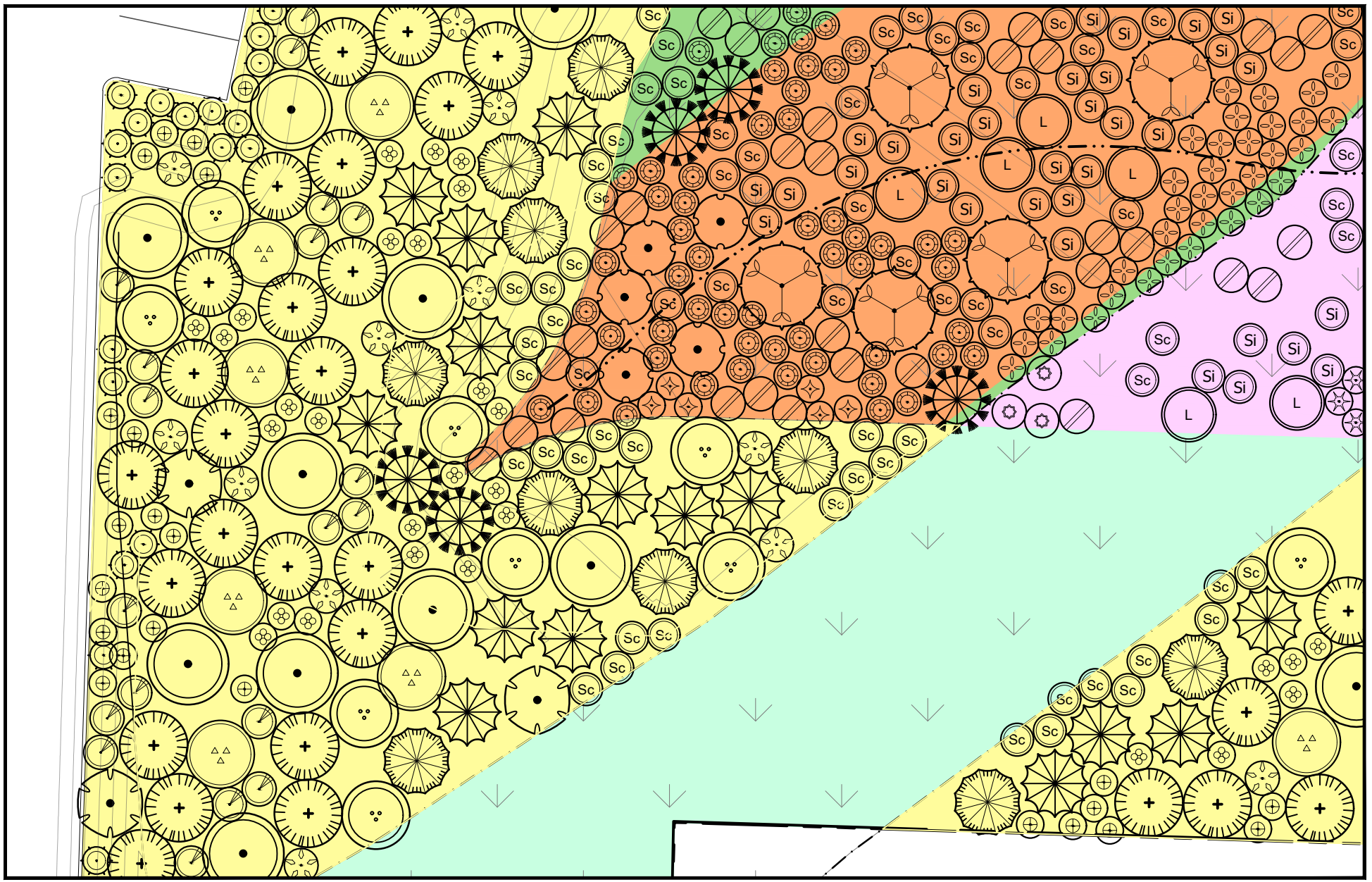
PLANTING TYPICAL



0 10 20 40

GRAPHIC SCALE
1"= 20'

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PLANT SCHEDULE (1/2)

		Area (sf):	40,504	11,803	110,550	162,857				
		Cov'g (%):	100	50	100					
		Trees (%):	25	25	50					
		Shrubs (%):	75	75	50					
Scientific Name	Common Name	WL Status	Wetland Creation/ Restoration	Wetland Reestablishment Enhancement	Buffer Restoration/ Enhancement	TOTAL	Spacing (min.)	Height (min.)	Size (min.)	Planting Area
TREES										
Acer macrophyllum	bigleaf maple	FACU	-	-	88	88	10 ft	3 ft	2 gal	Dry
Frangula purshiana (Rhamnus p.)	cascara	FAC	-	-	49	49	10 ft	3 ft	1 gal	Dry
Fraxinus latifolia	Oregon ash	FACW	33	-	-	33	12 ft	3 ft	2 gal	Wet - in wetland
Malus fusca (Pyrus f.)	Pacific crabapple	FACW	33	-	-	33	10 ft	3 ft	2 gal	Wet - in wetland
Pinus contorta var. contorta	shore pine	FAC	21	-	39	60	10 ft	3 ft	1 gal	Dry/Moist
Pseudotsuga menziesii	Douglas fir	FACU	-	-	258	258	10 ft	3 ft	2 gal	Dry
Salix lasiandra	Pacific willow	FACW	29	17	-	46	10 ft	4 ft	Stakes	Wet
Thuja plicata	western redcedar	FAC	-	-	122	122	10 ft	3 ft	2 gal	Moist
Tsuga heterophylla	western hemlock	FACU	-	-	83	83	10 ft	3 ft	2 gal	Moist
		Total:	116	17	639	772				
SHRUBS										
Acer circinatum	vine maple	FAC	-	-	146	146	10 ft	4 ft	2 gal	Dry/Moist
Cornus stolonifera	red-osier dogwood	FACW	193	56	-	249	4 ft	3 ft	1 gal	Moist/Wet
Corylus cornuta var. californica	western hazlenut	FACU	-	-	97	97	10 ft	2 ft	2 gal	Moist
Gaultheria shallon	salal	FACU	-	-	488	488	4 - 5 ft	1 ft	1 gal	Dry
Holodiscus discolor	oceanspray	FACU	-	-	176	176	5 ft	2 ft	1 gal	Dry
Physocarpus capitatus	Pacific ninebark	FACW	-	11	-	11	5 ft	2 ft	1 gal	Moist/Wet
Polystichum munitum	western swordfern	FACU	-	-	488	488	4 - 5 ft	1 ft	1 gal	Dry/Moist
Ribes lacustre	swamp gooseberry	FAC	42	-	-	42	4 ft	2 ft	1 gal	Moist/Wet
Rosa gymnocarpa	bald hip rose	FACU	-	-	166	166	4 ft	2 ft	1 gal	Dry/Moist
Rosa pisocarpa	clustered wild rose	FAC	-	14	-	14	4 ft	2 ft	1 gal	Wet
Rubus parviflorus	thimbleberry	FACU	-	-	166	166	4 ft	2 ft	1 gal	Moist
Rubus spectabilis var. spectabilis	salmonberry	FAC	374	32	195	601	4 ft	2 ft	1 gal	Moist
Salix scouleriana	Scouler's willow	FAC	193	32	244	469	5 ft	4 ft	Stakes	Dry
Salix sitchensis	Sitka willow	FACW	225	49	-	274	10 ft	4 ft	Stakes	Moist/Wet
Sambucus racemosa var. racemosa	red elderberry	FACU	-	11	113	124	5 ft	2 ft	2 gal	Dry
Spiraea douglasii	Douglas spirea	FACW	376	-	-	376	4 ft	2 ft	1 gal	Moist/Wet
Symphoricarpos albus var. laevigatus	common snowberry	FACU	-	-	273	273	4 ft	2 ft	1 gal	Dry
		Total:	1403	205	2552	4160				

0 10 20 40

GRAPHIC SCALE
1"= 20'

MARALCO
7730 202ND STREET
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PLANT SCHEDULE (2/2)

SEED MIXES (www.riverrefugeseed.com)		WL Status	Wetland Creation/ Restoration	Wetland Reestablishment Enhancement	Buffer Restoration/ Enhancement	TOTAL
Native Upland Grass Mix #9	**20 lbs/acre**					
Elymus glaucus	Blue wildrye	30%				
Bromus carinatus	California brome	25%				
Hordeum brachyantherum	Meadow barley	10%				
Festuca roemeri	Roemer's fescue	10%				
Deschampsia elongata	Slender hairgrass	10%				
Agrostis exarata	Spike bentgrass	5%				
Deschampsia cespitosa	Tufted hairgrass	5%				
Festuca rubra var. rubra	Red fescue	5%				
		Total (lbs):	-	-	51	51
Moist Soil Sedge & Rush Mix #11	**20 lbs/acre**					
Carex unilateralis	One-sided sedge	70%				
Carex densa	Dense sedge	12%				
Juncus effusus	Common rush	5%				
Juncus tenuis	Slender rush	5%				
Juncus bufonius	Toad rush	5%				
Carex stipata	Awl fruited sedge	2%				
Carex obnupta	Slough sedge	1%				
		Total (lbs):	5	-	-	5
Native Moist Soil Mgmt Mix #12	**20 lbs/acre**					
Glyceria occidentalis	Western mannagrass	35%				
Alisma subcordatum	American water plantain	15%				
Polygonum pensylvanicum	Pennsylvania smartweed	15%				
Beckmannia syzigachne	American sloughgrass	10%				
Alopecurus aequalis	Shortawn foxtail	5%				
Eleocharis palustris	Creeping spikerush	5%				
Hordeum brachyantherum	Meadow barley	5%				
Eleocharis ovata	Ovate spikerush	4%				
Leersia oryzoides	Rice cutgrass	3%				
Scirpus tabernaemontani	Softstem bulrush	3%				
		Total (lbs):	13	6	-	19
Habitat Structures						
Large Woody Debris	**5 ea.**	**18-20 feet long, 10 inch minimum diameter**				

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest, 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018).*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Tree calculations based upon 10-ft average spacing.
6 - Shrub calculations based upon 5-ft average spacing.
7 - *Gaultheria shallon, Mahonia nervosa, & Polystichum munitum* to be planted in groups of no less than 5 around the bases of trees and in open areas.

0 10 20 40
GRAPHIC SCALE
1"= 20'

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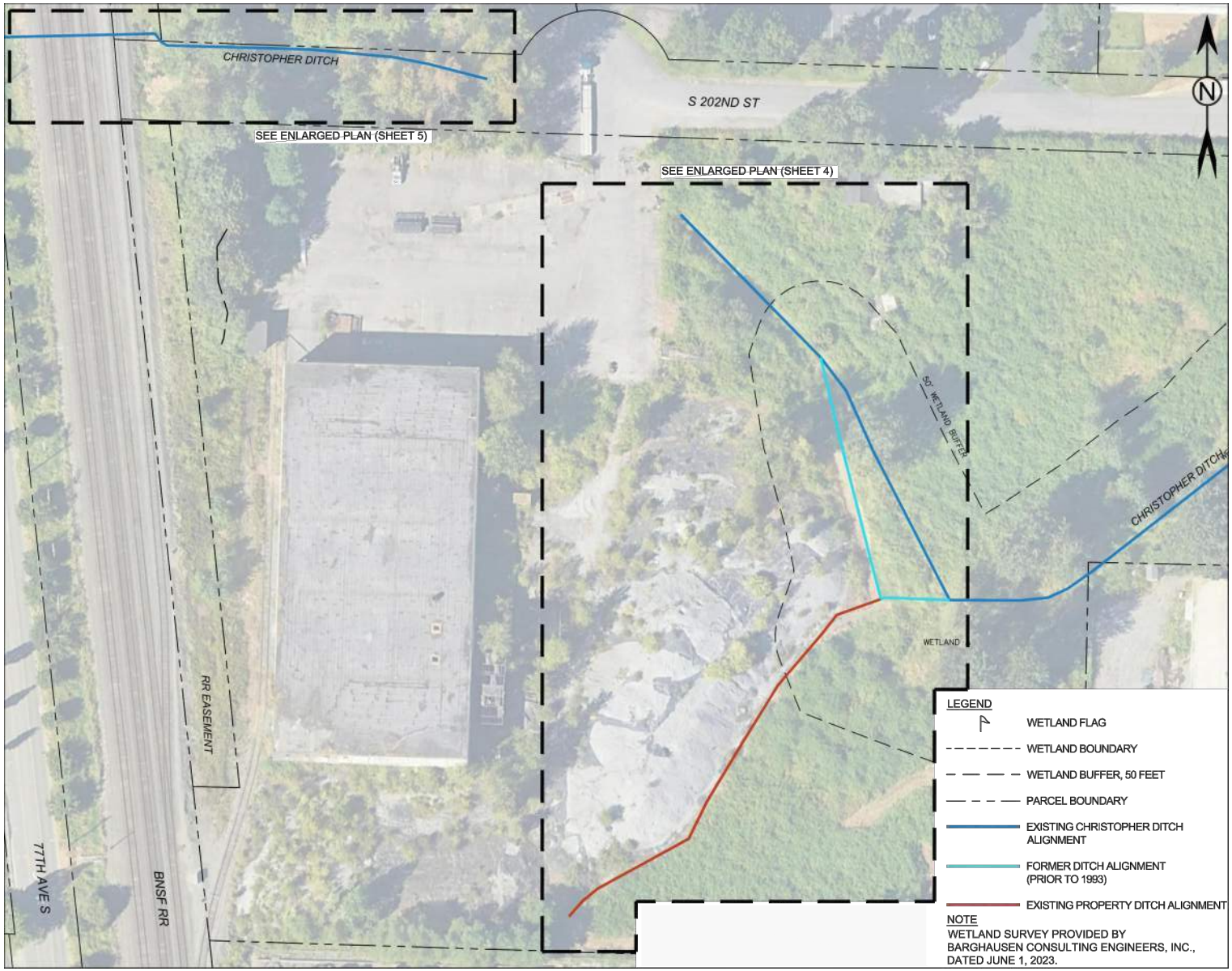
DITCH LOCATIONS OVERVIEW



0 60 120 240

GRAPHIC SCALE
1"= 120'

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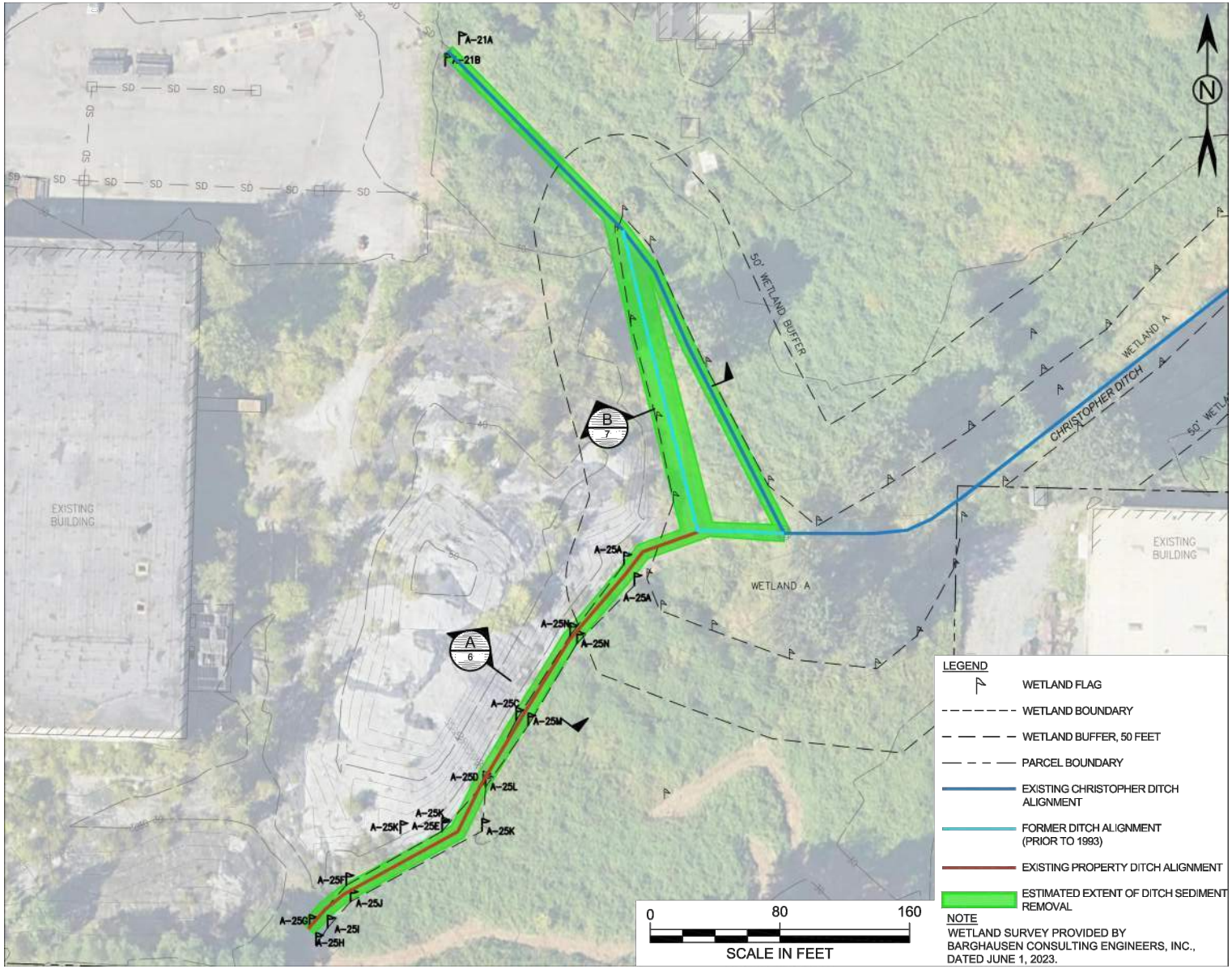
DITCH LOCATIONS ENLARGED PLAN (1/2)



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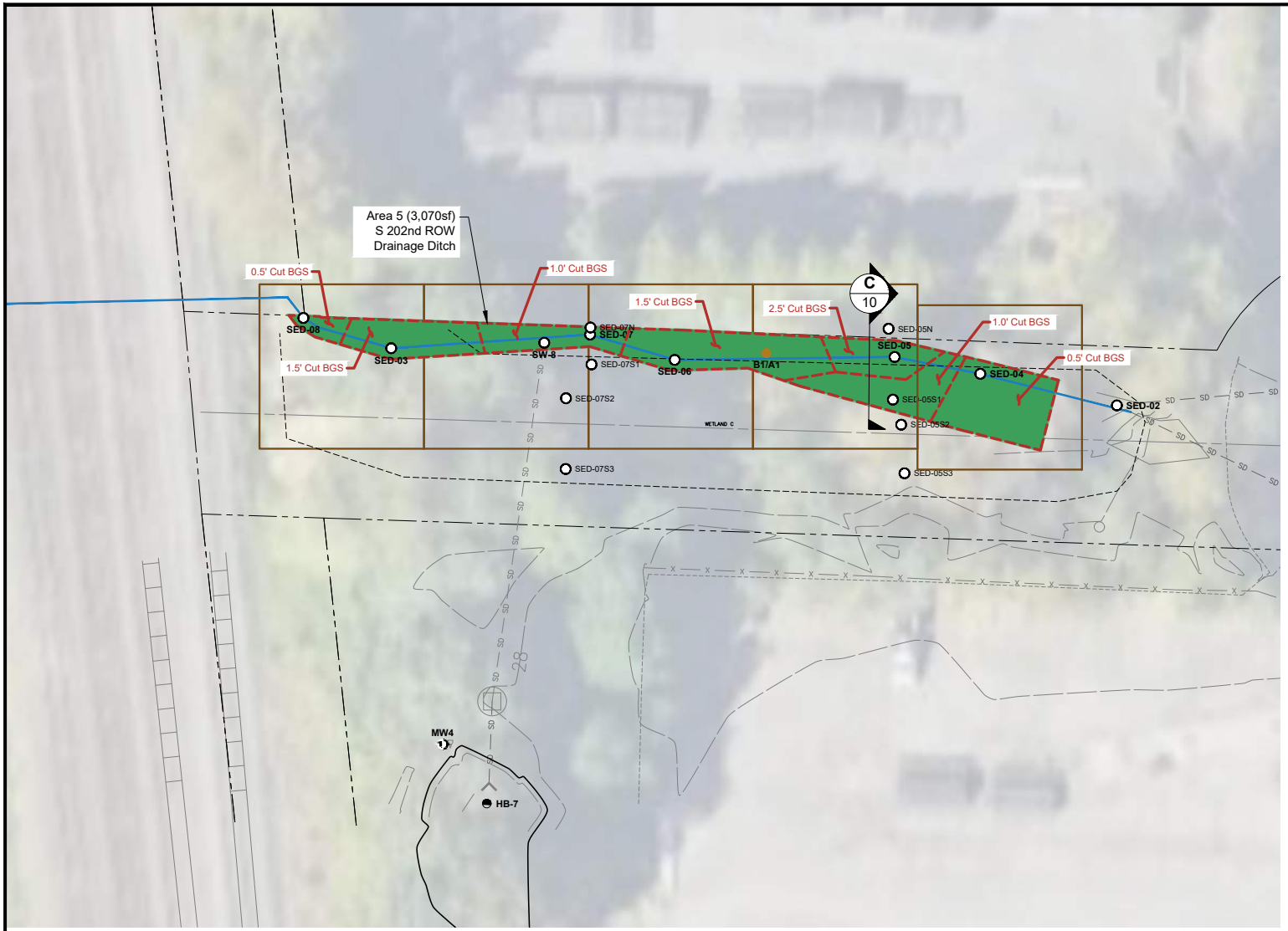
DITCH LOCATIONS ENLARGED PLAN (2/2)



LEGEND

- Sediment Sample
- Confirmation Soil Sampling Grid Locations
- Estimated Extent of Ditch Exceeding Screening Levels
- Excavation Contours
- Christopher Ditch
- Parcel Boundary

0 30 60
SCALE IN FEET

0 30 60 120
GRAPHIC SCALE
1"= 60'

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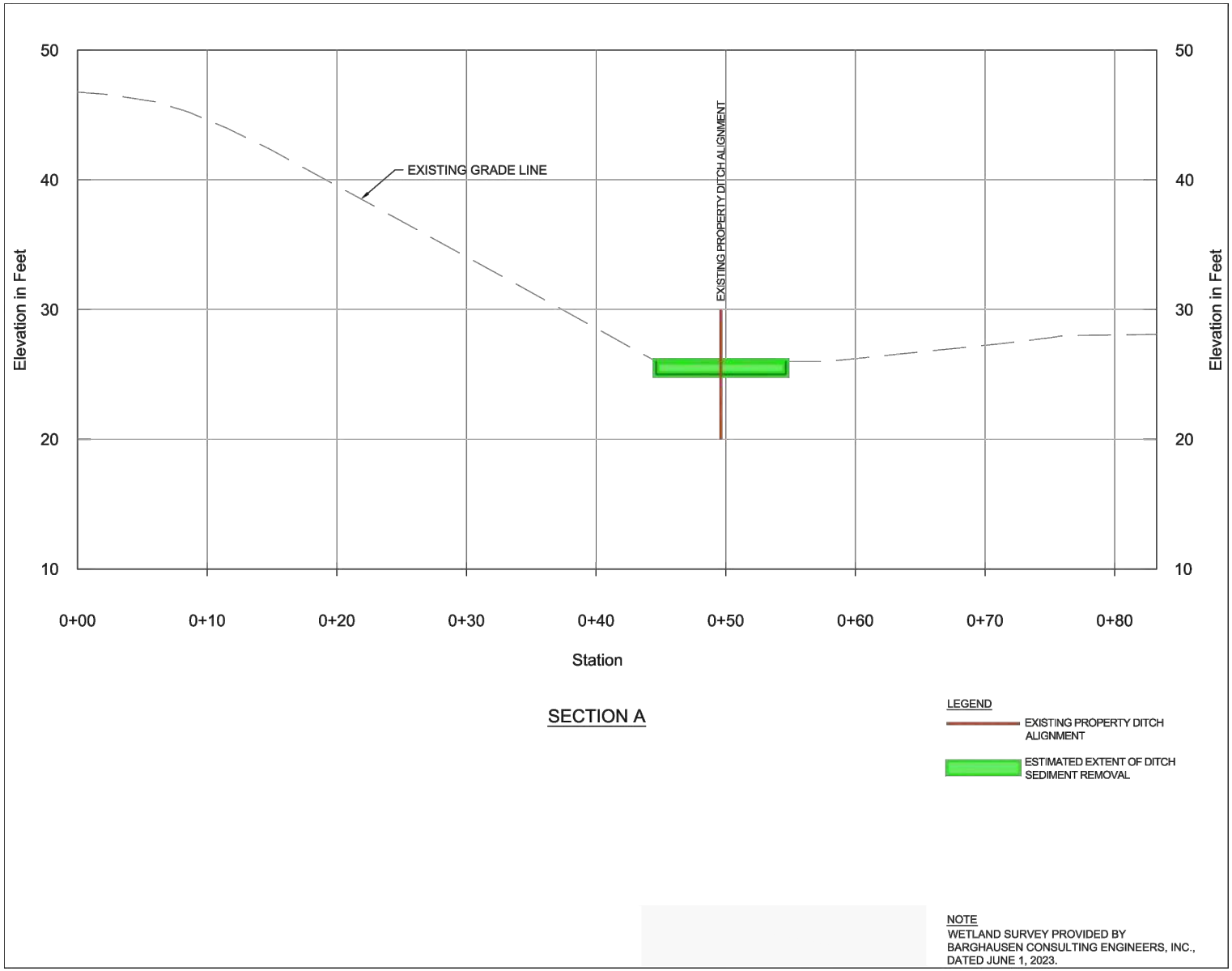
TYPICAL SECTION (1/3)



0 6 12 24

GRAPHIC SCALE
1"= 12'

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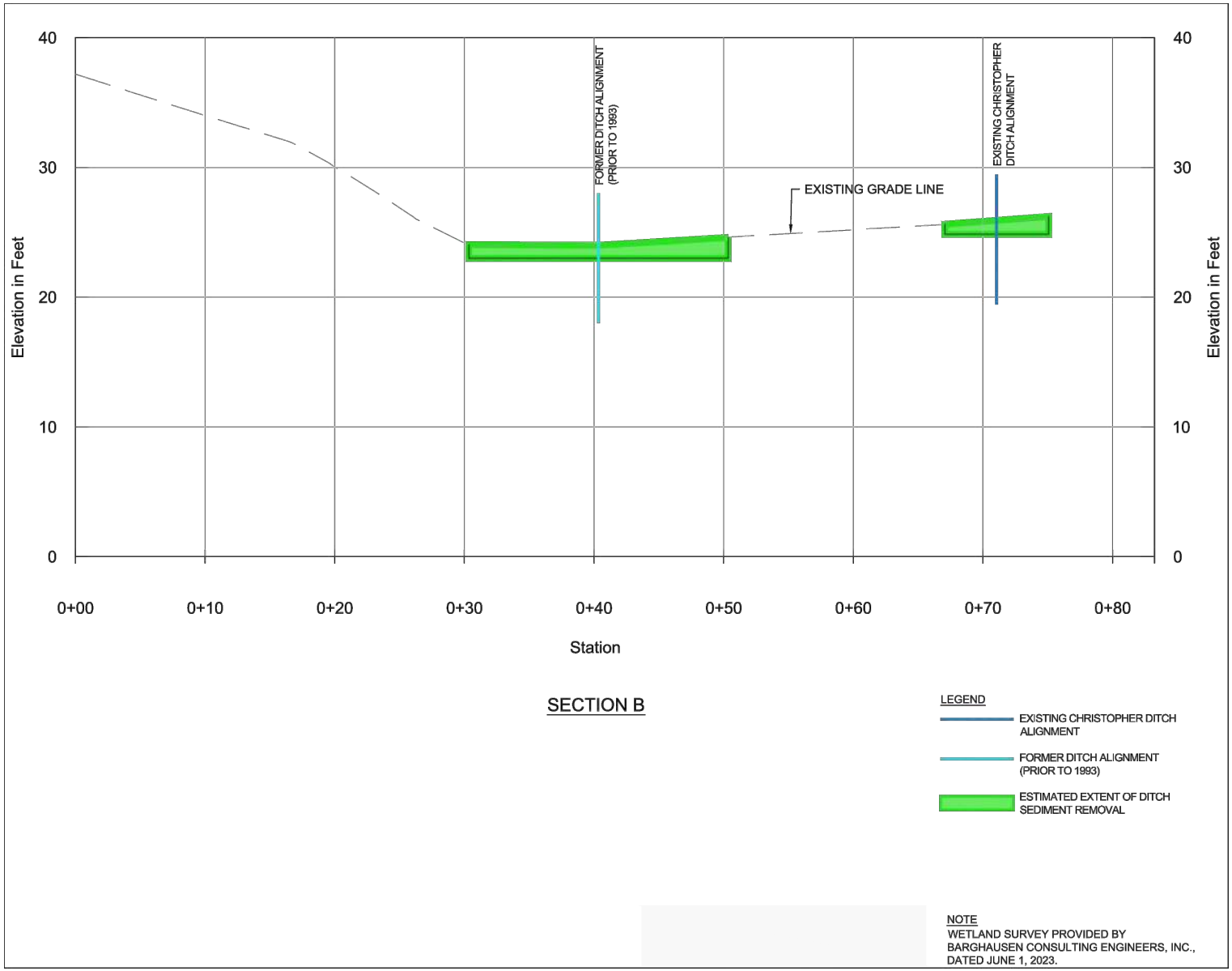
TYPICAL SECTION (2/3)



SECTION B

LEGEND

- EXISTING CHRISTOPHER DITCH ALIGNMENT
- FORMER DITCH ALIGNMENT (PRIOR TO 1993)
- ESTIMATED EXTENT OF DITCH SEDIMENT REMOVAL

NOTE
WETLAND SURVEY PROVIDED BY BARGHAUSEN CONSULTING ENGINEERS, INC., DATED JUNE 1, 2023.

0 6 12 24

GRAPHIC SCALE
1"= 12'

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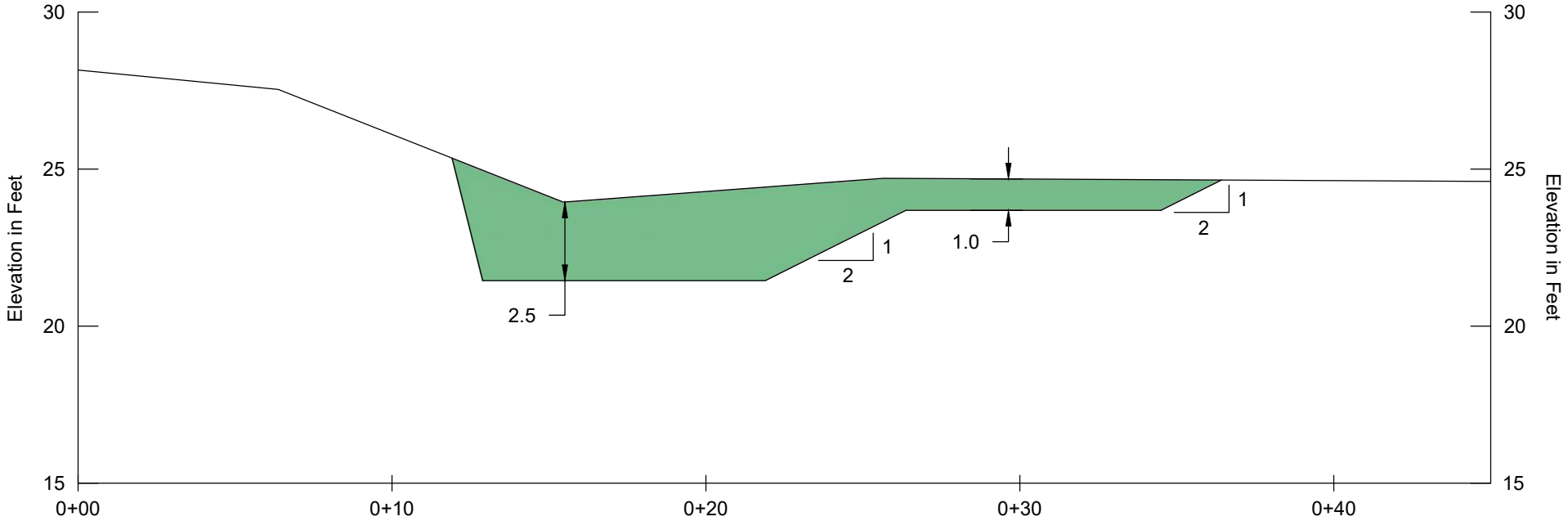
TYPICAL SECTION (3/3)



C/8 Typical Section - Off-Property Ditch

0 5 10

SCALE IN FEET
VERTICAL = HORIZONTAL

0 6 12 24

GRAPHIC SCALE
1"= 12'

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SHEET: 15

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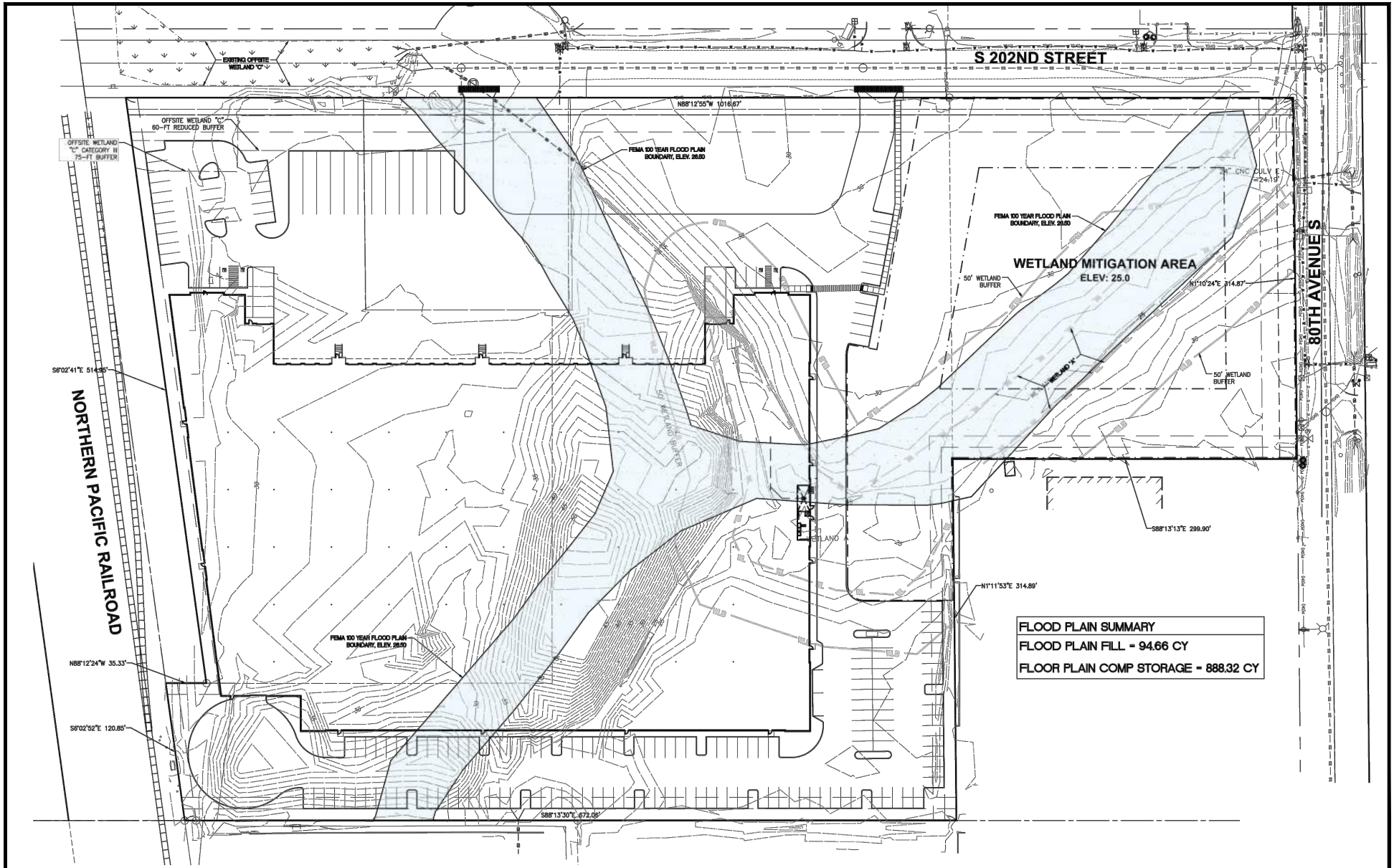
Plotted February 1, 2024

NWS-2022-778

FLOOD PLAIN PLAN



0 60 120 240

GRAPHIC SCALE
1"= 120'

MARALCO
7730 202ND STREET
KENT, WA 98032

KING COUNTY
PARCEL NUMBER(S):
6315000300

Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions
2907 HARBORVIEW DRIVE, SUITE D
GIG HARBOR, WASHINGTON 98335
P. 253.514.8952
F. 253.514.8954
WWW.SOUNDVIEWCONSULTANTS.COM

DATE:	04/24/2024
JOB:	1582.0022
BY:	MW
SCALE:	AS SHOWN
SHEET:	16

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Plotted February 1, 2024

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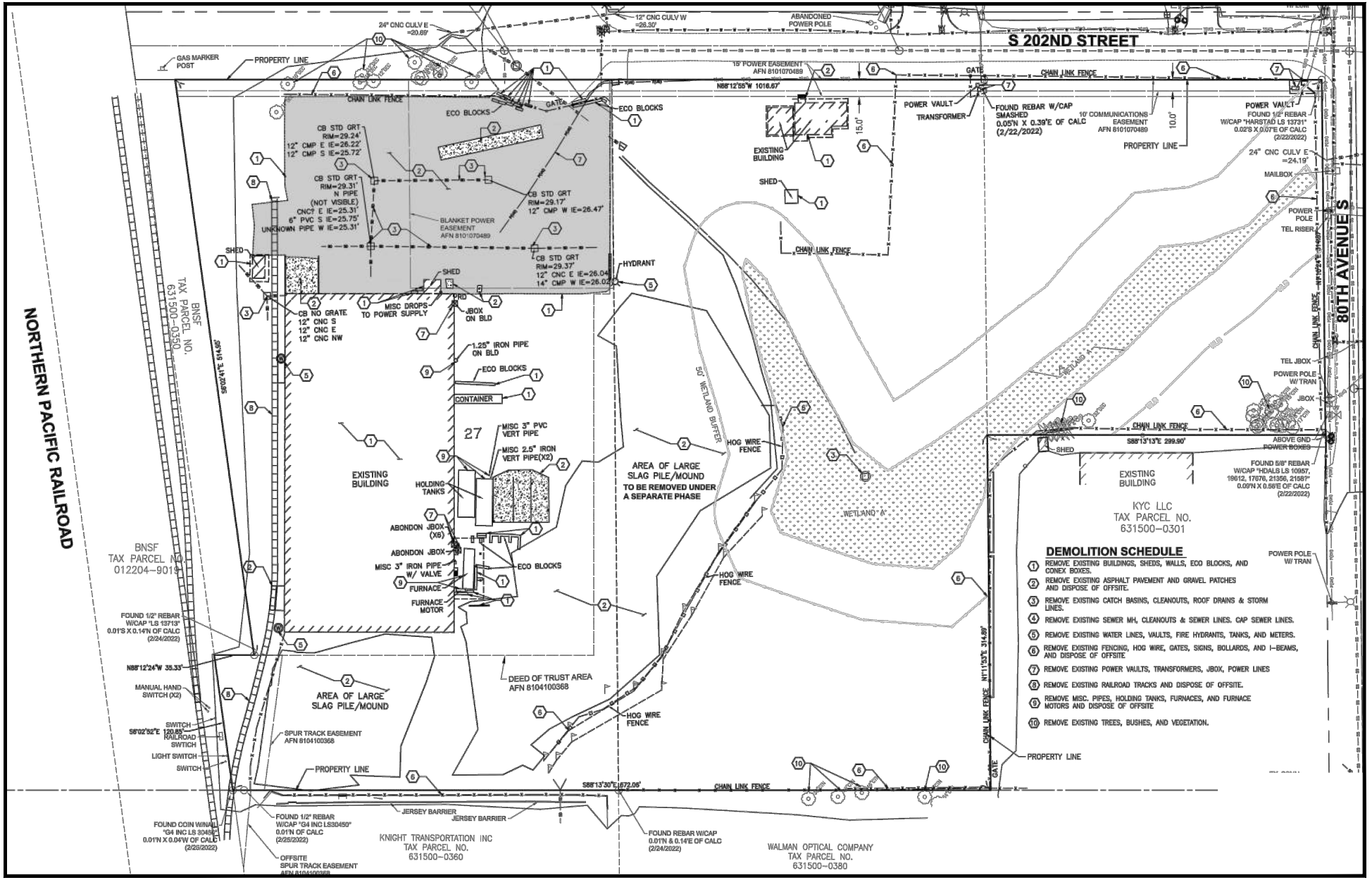
DEMOLITION PLAN



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GRAPHIC SCALE
1" = 120'

MARALCO
7730 202ND STREET
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BY: MW
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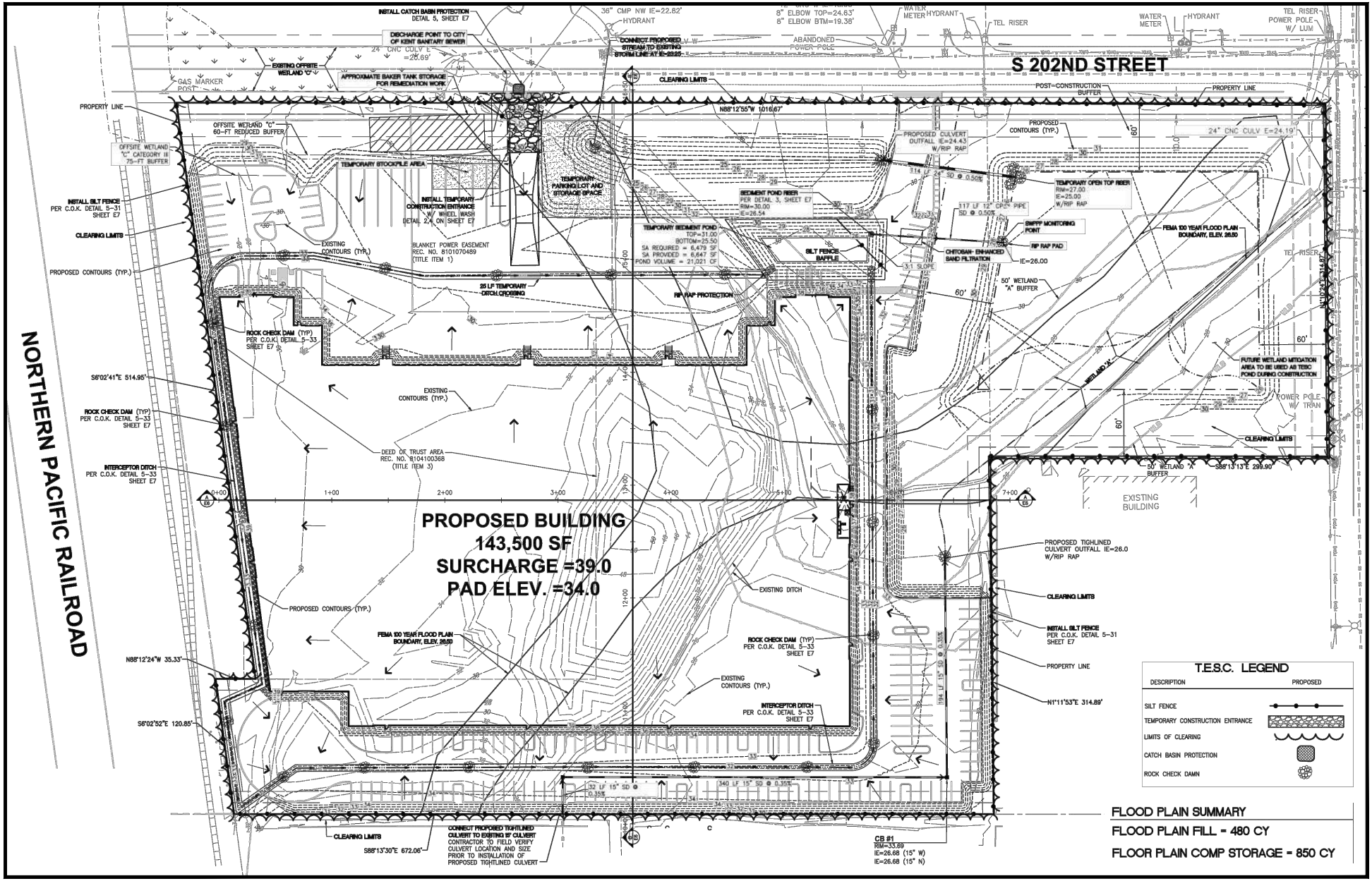
ROUGH GRADING, BUILDING SURCHARGE, & TESC PLAN



0 60 120 240

GRAPHIC SCALE
1"= 120'

MARALCO
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KING COUNTY
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BY: MW
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SHEET: 18

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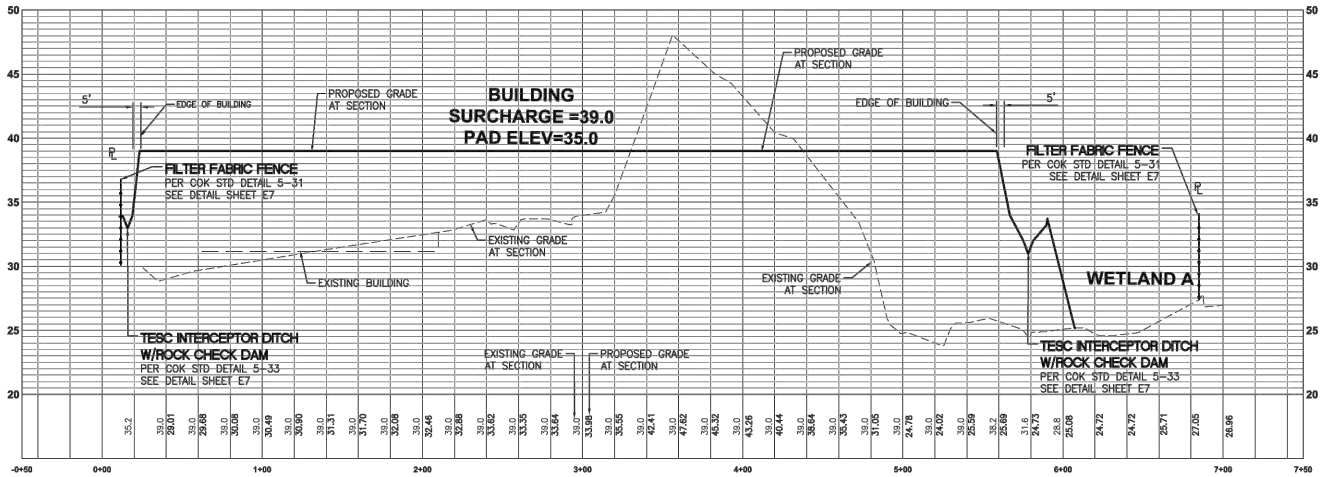
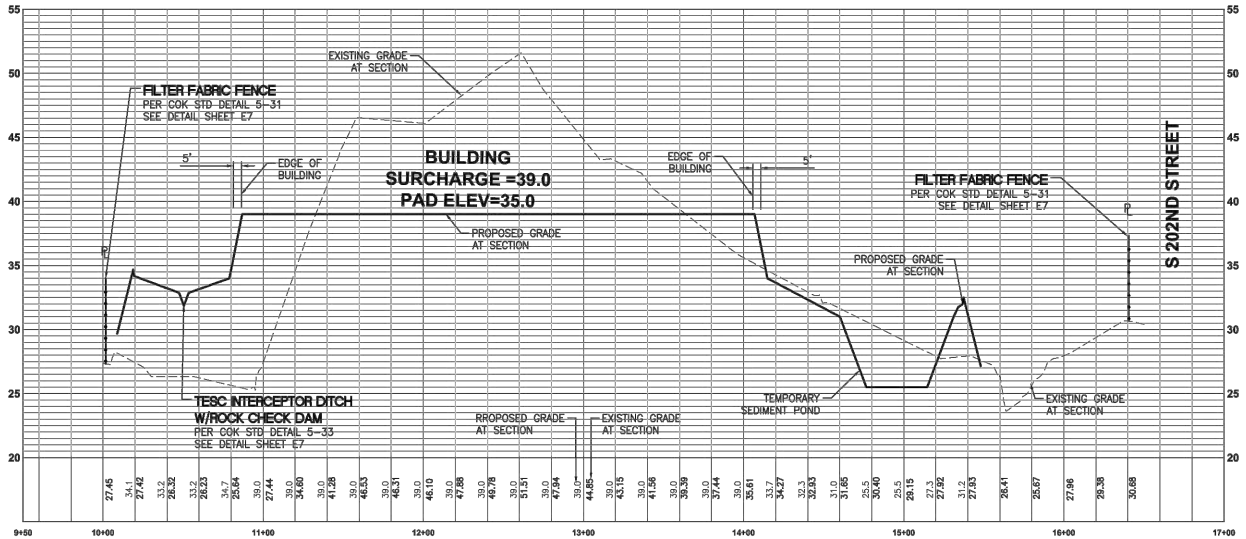
SITE SECTIONS



SECTION A-A - PROFILE VIEW
SCALE: H: 1"=40' V: 1"=5' STA -00+50 - 7+50 NORTH FACING



SECTION B-B - PROFILE VIEW
SCALE: H: 1"=40' V: 1"=5' STA 9+50 - 17+00 WEST FACING

0 6 12 24

GRAPHIC SCALE
1"= 12'

MARALCO
7730 202ND STREET
KENT, WA 98032

KING COUNTY
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DATE:	04/24/2024
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SCALE:	AS SHOWN
SHEET:	19

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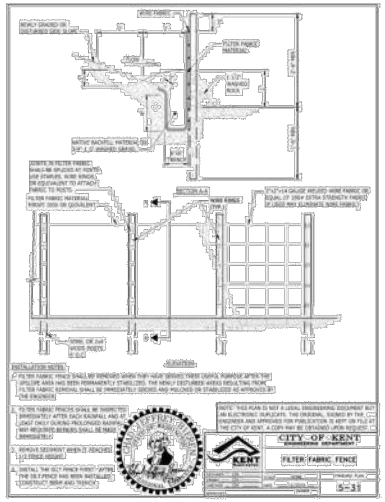
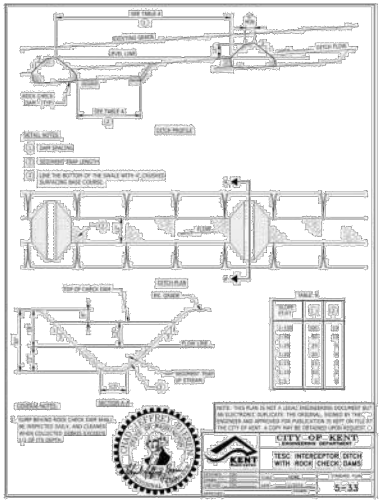
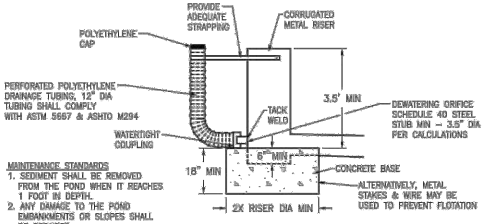
NWS-2022-778

TESC NOTES & DETAILS





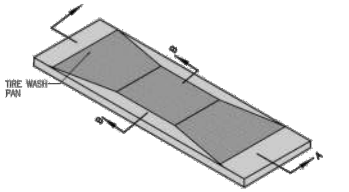


MAINTENANCE STANDARDS
1. SEDIMENT SHALL BE REMOVED FROM THE POND WHEN IT REACHES 1 FOOT IN DEPTH.
2. ANY DAMAGE TO THE POND EMBANKMENTS OR SLOPES SHALL BE REPAIRED.

3 SEDIMENT POND RISER
NOT TO SCALE

EROSION AND SEDIMENT CONTROL NOTES

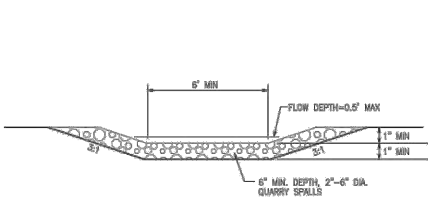
1. SEE THE CITY OF PACIFIC STANDARD NOTES ON THIS SHEET.
2. SEE THE CONSTRUCTION SEQUENCE ON SHEET E1.
3. ON-SITE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. IN CASE EROSION OR SEDIMENTATION OCCURS TO ADJACENT PROPERTY, ALL CONSTRUCTION WORK ON THE PROJECT THAT WILL AGGRAVATE THE SITUATION WILL CEASE AND THE CONTRACTOR SHALL IMMEDIATELY COMMENCE RESTORATION OR MITIGATION MEASURES. RESTORATION ACTIVITY SHALL CONTINUE UNTIL SUCH TIME AS THE PROBLEM IS RECTIFIED.
5. IN ANY AREA WHICH HAS BEEN STRIPPED OF VEGETATION AND WHERE NO FURTHER WORK IS ANTICIPATED FOR A PERIOD OF 2-7 DAYS OR MORE, ALL DISTURBED AREAS MUST BE IMMEDIATELY STABILIZED WITH MULCHING, GRASS PLANTING, OR OTHER APPROVED EROSION CONTROL TREATMENT APPLICABLE TO THE TIME OF YEAR IN QUESTION. GRASS SEEDING ALONE WILL BE ACCEPTABLE ONLY DURING THE MONTHS OF APRIL THROUGH SEPTEMBER, INCLUSIVE. SEEDING MAY PROCEED, HOWEVER, WHENEVER IT IS IN THE INTEREST OF THE CONTRACTOR, BUT MUST BE AUGMENTED WITH MULCHING, NETTING, OR OTHER TREATMENT.
6. ALL WORK ASSOCIATED WITH STABILIZING THE DISTURBED AREAS SHALL BE IN ACCORDANCE WITH THE PUGET SOUND STORMWATER MANAGEMENT MANUAL.
7. ALL NECESSARY FACILITIES SHALL BE MAINTAINED ON-SITE TO PREVENT DEBRIS, AND MUD FROM ACCUMULATING ON THE PUBLIC RIGHT-OF-WAY.
8. ALL STOCK PILED MATERIAL (BEDDING, TRENCH EXCAVATION, TRENCH BACKFILL) SUBJECT TO EROSION SHALL BE COVERED WITH 0.06 MIL PLASTIC SHEETING SECURED IN PLACE WITH SANDBAGS OR EQUIVALENT.



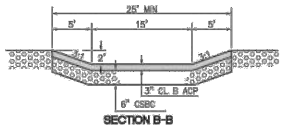
SECTION A-A

STANDARD ESC PLAN NOTES

1. APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING, IF REQUIRED, PRIOR TO CONSTRUCTION (SWDM APPENDIX D). DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
4. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, MAY BE REQUIRED T ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN AND TRACK OUT TO ROAD RIGHT OF WAY DOES NOT OCCUR FOR THE DURATION OF THE PROJECT.
5. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
6. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION ETC.) AS DIRECTED BY KING COUNTY.
7. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.
8. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
9. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.
10. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH DURING THE DRY SEASON, BI-MONTHLY DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.
11. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE ROUGH GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST THREE FEET ABOVE THE FINAL GRADE OF THE PERMANENT FACILITY.
13. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE SURFACE WATER DESIGN MANUAL.



1 EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE

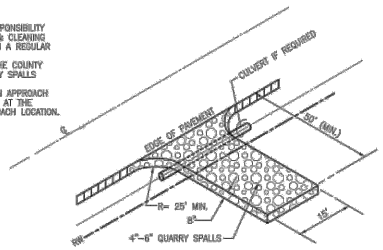


SECTION B-B

CONSTRUCTION ENTRANCE NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING & CLEANING THE APPROACH ON A REGULAR BASIS.
2. IF DIRECTED BY THE CITY ADDITIONAL QUARRY SPALLS MUST BE ADDED.
3. THE CONSTRUCTION APPROACH MUST BE LOCATED AT THE PERMANENT APPROACH LOCATION.
4. MINIMUM WATER DEPTH TO BE MAINTAINED AT 1 1/2 FEET IN TIRE WASH PAN AREA.
5. CONSTRUCT WASH PAD AS REQ'D BASED ON FIELD CONDITION OR PROVIDE ALTERNATE TO DESIGN CITY FOR APPROVAL

4 TEMPORARY WHEEL WASH
NOT TO SCALE

NOTES:
1. CONTRACTORS RESPONSIBILITY FOR MAINTAINING & CLEANING THE APPROACH ON A REGULAR BASIS.
2. IF DIRECTED BY THE COUNTY ADDITIONAL QUARRY SPALLS MUST BE ADDED.
3. THE CONSTRUCTION APPROACH MUST BE LOCATED AT THE PERMANENT APPROACH LOCATION.



2 TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE

MATERIALS OF CONSTRUCTION

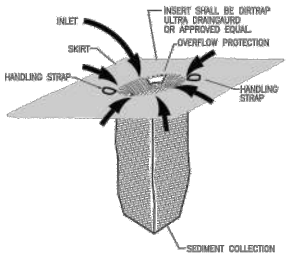
FABRIC:	NEEDLE PUNCHED NON-WOVEN GEOTEXTILE MATERIAL. FABRIC IS IS RESISTANT TO ULTRAVIOLET AND BIOLOGICAL DEGREDATION AND A BROAD RANGE OF CHEMICALS.
APPARENT OPENING SIZE (AOS):	80 US STANDARD SIEVE (0.180 MM)
GRAB TENSILE STRENGTH:	200 LBS
PUNCTURE STRENGTH:	130 LBS
MULLEN BURST:	400 PSI
TRAPEZOIDAL TEAR:	85 LBS
WATER FLOW RATE:	110 GPM/FT2.
PREMEABILITY:	0.38 CM/SECOND

DIMENSIONS:

SKIRT:	24"x36"
SOCK FILTER/SEPARATOR:	10" D x 24" L

DISPOSAL REQUIREMENTS:

CONSULT FEDERAL, STATE, AND LOCAL REGULATIONS FOR DISPOSAL OF INSERTS



5 CATCH BASIN INSERT
NOT TO SCALE

0 6 12 24

GRAPHIC SCALE
1"= 12'

MARALCO
7730 202ND STREET
KENT, WA 98032

KING COUNTY
PARCEL NUMBER(S):
6315000300

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King County
Wastewater Treatment Division
Industrial Waste Program
Department of Natural Resources and Parks
201 South Jackson Street, Mail Stop KSC-NR-5513
Seattle, WA 98104-3855
206-477-5300
TTY Relay: 711

February 6, 2024

SENT VIA EMAIL ONLY
ELECTRONIC READ RECEIPT REQUESTED

Kyle Siekawitch
7730 202nd Street LLC
10655 NE 4th Street, Suite 500
Bellevue,WA 98004
ksiekawitch@bridgeindustrial.com

Issuance of New Wastewater Discharge Authorization No. 1208-01 to 7730 202nd Street LLC - Maralco Property Construction Project

Dear Kyle Siekawitch:

The King County Industrial Waste (KCIW) Program is responsible for regulating industrial wastewater in the region so that it is treated properly before being discharged to the sanitary sewer system. KCIW partners with industries to ensure appropriate discharge limits are followed, which, in turn, protects the County's wastewater conveyance and treatment systems, workers, and water quality.

To this end, KCIW has reviewed the application to discharge construction wastewater to the sanitary sewer system from the 7730 202nd Street LLC - Maralco Property Construction Project located at 7730 202nd Street, Kent, Washington, and has issued the enclosed Minor Discharge Authorization.

This discharge authorization permits the discharge of limited amounts of construction wastewater into King County's sanitary sewer system in accordance with the effluent limitations and other requirements and conditions set forth in the document and the regulations outlined in King County Code 28.84.060 (enclosed). As long as 7730 202nd Street LLC - Maralco Property Construction Project maintains compliance with regulations and does not change the nature and volume of discharge, KCIW will not require application for an industrial wastewater discharge permit, a type of approval that would result in additional requirements, oversight, and increased fees.

To increase the volume of discharge or change the type or quantities of substances discharged, 7730 202nd Street LLC - Maralco Property Construction Project must contact KCIW at least 60 days before making these changes.

King County Code 28.84 authorizes a fee for each Minor Discharge Authorization issued by the King County Department of Natural Resources and Parks. The current fee for issuance of a new Minor Discharge Authorization is $2,000. King County will send you an invoice for this amount.

For questions about this discharge authorization or wastewater discharge from the construction project, please call 206-477-5426 or email todd.gowing@kingcounty.gov. Additional information is available on KCIW's website at www.kingcounty.gov/industrialwaste.

Thank you in advance for your efforts to maintain the integrity of King County's wastewater conveyance and treatment infrastructure, ensure worker safety, and protect water quality in the central Puget Sound region.

Sincerely,

DocuSigned by:
C78B00E60DE34C5...

Todd Gowing
Compliance Investigator

Enclosures

cc: Jamie Stevens, Crete Consulting Inc., jamie.stevens@creteconsulting.com
Heather Martin, City of Kent, hmartin@kentwa.gov
Sean Bauer, City of Kent, sbauer@kentwa.gov
Marcus Hoff, City of Kent, mhoff@kentwa.gov

King County

MINOR DISCHARGE AUTHORIZATION
King County Industrial Waste Program
201 S. Jackson Street, Mail Stop KSC-NR-5513
Seattle, WA 98104-3855

NUMBER 1208-01

for

7730 202nd Street LLC - Maralco Property Construction Project

Site address: 7730 202nd Street
Kent, Washington

Mailing address: 10655 NE 4th Street, Suite 500
Bellevue,WA 98004

Phone: 425-749-4325
Emergency (24-hour) phone: 253-797-6323
Industry type: Construction Dewatering
Discharge to: South Treatment Plant

*Note: This authorization is valid only for the specific discharges shown below:

Discharge process: Wastewater generated by construction dewatering

Pretreatment process: Gravity Separation

Maximum discharge volume: 32,000 gallons per day
Maximum discharge rate: 15 gallons per minute

Effective date: February 9, 2024
Expiration date: December 1, 2025

Permission is hereby granted to discharge construction wastewater from the above-identified site into the King County sewer system in accordance with the effluent limitations and monitoring requirements set forth in this authorization.

If the industrial user wishes to continue to discharge after the expiration date, an application must be filed for re-issuance of this discharge authorization at least 90 days prior to the expiration date. For information concerning this King County Discharge Authorization please call Industrial Waste Compliance Investigator Todd Gowing at 206-477-5426.

24-HOUR EMERGENCY NOTIFICATION
South Treatment Plant: 206-263-1760
Washington State Department of Ecology: 206-594-0000

I. SPECIAL CONDITIONS

A. In accordance with City of Kent requirements the maximum discharge rate to the sewer is 15 gallons per minute. The project owner shall provide onsite staff to monitor the downstream maintenance hole for surcharging. If surcharging in the downstream maintenance hole is observed all discharge from the project shall cease. Any spills or overflow shall be cleaned by the project staff and reported to the City of Kent.

B. No later than February 25, 2024, the permittee must submit a list of 7730 202nd Street LLC - Maralco Property Construction Project and contractor personnel responsible for dewatering activities, including operation and maintenance of the wastewater treatment system, monitoring of the discharge to the sanitary sewer, and monitoring of the downstream maintenance hole. The list shall include the site contacts' name, title, company, and phone numbers (office and cell).

C. Discharge to the sanitary sewer shall not begin until KCIW has conducted a preoperative inspection of the pretreatment facilities and has sent written notification (email is sufficient) to the permittee that discharges may begin.

D. All persons responsible for monitoring the discharge to the sanitary sewer shall review a copy of this authorization.

E. A copy of this authorization shall be on site at all times for review and reference.

F. This authorization grants the discharge of limited amounts of wastewater from the following waste streams:

1. Contaminated stormwater runoff

2. Excavation dewatering

Wastes or contaminants from sources other than permitted herein shall not be discharged to the sanitary sewer without prior approval from KCIW.

G. The discharge shall not cause hydraulic overloading conditions of the sewerage conveyance system. During periods of peak hydraulic loading KCIW and City of Kent representatives reserve the authority to request that discharge to the sewer be stopped.

H. All wastewater shall be collected and treated in accordance with treatment methods approved by KCIW. Wastewater shall not bypass treatment systems. Modifications to wastewater treatment systems shall not occur without prior approval from KCIW.

I. Totalizing and non-resettable flow meters must be installed on all permitted discharge pipes to the sewer.

J. An accessible sampling spigot must be installed on the discharge pipe from the last treatment unit of the wastewater treatment system. The sample site shall be representative

of all industrial waste streams discharged to the sewer from this site. Each sample site shall be accessible to KCIW representatives when discharge to the sewer is occurring.

K. The contractor shall implement erosion control best management practices to minimize the amount of solids discharged to the sanitary sewer system. As a minimum precaution, the wastewater must be pumped to an appropriately sized settling tank(s) prior to entering the sewer system.

L. The permittee shall properly operate and maintain all wastewater treatment units to ensure compliance with established discharge limits. Solids accumulation in tanks used for solids settling shall not exceed 25 percent of the tank's working hydraulic capacity. Each tank's working hydraulic capacity is based on the water column height as measured from the bottom of the tank to either the invert elevation of the tank's outlet pipe (gravity discharges) or discharge pump intake (pumped discharges).

M. Results of all required self-monitoring sampling must be recorded daily. Recorded information for each discharge site must include:

1. Sample date
2. Sample time
3. Sample results
4. Operator name
5. Comments (if applicable)

These records shall be maintained on site and shall be available for review by KCIW personnel during normal business hours.

N. The permittee must establish a sewer account with City of Kent and provide necessary reports to ensure accurate assessment of sewer charges for all construction dewatering discharge sites associated with this project.

II. SELF-MONITORING REQUIREMENTS

A. The following self-monitoring requirements shall be met for this discharge authorization:

Parameter	Frequency	Sample Type/Method
Discharge volume	Daily	In-line flow meter
Discharge rate	Daily	In-line flow meter
Settleable solids	Daily	Grab by Imhoff cone
pH	Daily	Hand-held meter
Nonpolar FOG	Monthly	3 Grabs

B. The settleable solids field test by Imhoff cone must be performed as follows:

1. Fill cone to one-liter mark with well-mixed sample

2. Allow 45 minutes to settle

3. Gently stir sides of cone with a rod or by spinning; settle 15 minutes longer

4. Record volume of settleable matter in the cone as ml/L

C. The three nonpolar fats, oils, and grease (FOG) grab samples shall be of equal volume, collected at least five minutes apart, and analyzed separately. When using U.S. Environmental Protection Agency approved protocols specified in 40 CFR Part 136, the individual grab samples may be composited (at the laboratory) prior to analysis. The result of the composite sample or the average of the concentrations of the three grab samples may be reported as Total FOG unless the value is 100 mg/L or greater, in which case the concentration of nonpolar FOG must be reported.

D. If a violation of any discharge limits or operating criteria is detected in monitoring, you shall notify KCIW immediately upon receipt of analytical data.

E. 7730 202nd Street LLC - Maralco Property Construction Project shall submit an end-of project self-monitoring report (form enclosed) within 15 days from completion of all construction dewatering activities to the sewer or by **December 15, 2025**, whichever comes first. The report must contain results of required self-monitoring and total volume discharged to the sewer.

F. All self-monitoring data submitted to KCIW, which required a laboratory analysis, must have been performed by a laboratory accredited by the Washington State Department of Ecology for each parameter tested, using procedures approved by 40 CFR 136. This does not apply to field measurements performed by the industrial user such as pH, temperature, flow, atmospheric hydrogen sulfide, total dissolved sulfides, total settleable solids by Imhoff cone, or process control information.

G. All sampling data collected by the permittee, at the point of compliance, and analyzed using procedures approved by 40 CFR 136, or approved alternatives, shall be submitted to KCIW whether required as part of this authorization or done voluntarily by the permittee.

H. Self-monitoring reports shall be signed by an authorized representative of the industrial user. The authorized representative of the industrial user is defined as:

1. The president, secretary, treasurer, or a vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation

2. The manager of one or more manufacturing, production, or operating facilities, but only if the manager:

   a. Is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations

   b. Can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements and knowledgeable of King County reporting requirements

   c. Has been assigned or delegated the authority to sign documents, in accordance with corporate procedures

3. A general partner or proprietor if the industrial user is a partnership or proprietorship, respectively

4. A director or highest official appointed or designated to oversee the operation and performance of the industry if the industrial user is a government agency

5. The individuals described in one through four above may designate an authorized representative if:

   a. The authorization is submitted to King County in writing.

   b. The authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company or agency.

III. GENERAL DISCHARGE LIMITATIONS

A. Operating Criteria

There shall be no odor of solvent, gasoline, or hydrogen sulfide (rotten egg odor), oil sheen, unusual color, or visible turbidity. The discharge must remain translucent. If any discharge limits are exceeded, you must stop discharging and notify KCIW at 206-477-5300.

B. Corrosive Substances

Limits

Instantaneous minimum:	pH 5.0 (standard units [s.u.])
Daily minimum:	pH 5.5 (s.u.)
Maximum:	pH 12.0 (s.u.)

The instantaneous minimum pH limit is violated whenever any single grab sample or any instantaneous recording is less than pH 5.0.

The daily minimum pH limit is violated whenever any continuous recording of 15 minutes or longer remains below pH 5.5 or when each pH value of four consecutive grab samples collected at 15-minute intervals or longer within a 24-hour period remains below pH 5.5.

Discharges of caustic solutions greater than pH 12.0 are prohibited unless King County provides prior written authorization. For these situations, the authorized caustic solution discharges above pH 12.0 must be less than pH 12.5 and must not contain an equivalent weight of sodium hydroxide (NaOH) that exceeds a daily loading rate of 21 pounds/day. The authorized discharge of caustic solutions greater than pH 12.0 shall be subject to special conditions to protect worker safety and the POTW.

C. Fats, Oils, and Grease

FOG Accumulations and Obstructions
Discharges of FOG shall not result in significant accumulations which, either alone or in combination with other wastes, are capable of obstructing flow or interfering with the operations or performance of the POTW.

Nonpolar FOG (mineral/petroleum origin)
Nonpolar FOG limit: 100 mg/L

The limit for nonpolar FOG is violated when either:

- The arithmetic mean of the concentration from the individual analyses of three grab samples, taken no more frequently than 5-minute intervals, exceeds the limitation, or
- The concentration of a single composite sample of three grab samples, taken no more frequently than 5-minute intervals, exceeds the limitation.

Industrial users that violate the nonpolar FOG limit may be required to complete, for King County review and approval, a FOG control plan.

Polar FOG (Animal and Vegetable Origin)
Industrial users that have the potential to discharge polar FOG shall minimize free-floating polar FOG. Industrial users must minimize the use of emulsifying agents, such as cleaners or detergents, to only the quantity needed to maintain industrial activities at their facility and to not impact the POTW.

Industrial users may not add emulsifying agents prior to or within FOG-removal devices, exclusively for the purposes of emulsifying free-floating FOG.

Industrial users that discharge free-floating polar FOG will be required to complete, for King County review and approval, a FOG control plan.

King County has the authority to include aqueous concentration-based discharge limits for polar FOG or total FOG (i.e., the sum of polar and nonpolar FOG) in permits and discharge authorizations issued to industrial users that primarily discharge FOG of animal or vegetable origin. The concentration-based limits shall be based on what can be achieved through implementation of a treatment technology that the Wastewater Treatment Division Director determines represents all known, available, and reasonable methods of prevention, control, and treatment.

D. Flammable or Explosive Materials

No person shall discharge any pollutant, as defined in 40 CFR 403.5, that creates a fire or explosion hazard in any sewer or treatment works, including, but not limited to, waste streams with a closed cup flashpoint of less than 140° Fahrenheit or 60° Centigrade using the test methods specified in 40 CFR 261.21.

At no time shall two successive readings on an explosion hazard meter, at the point of discharge into the system (or at any point in the system), be more than 5 percent nor any single reading be more than 10 percent of the lower explosive limit (LEL) of the meter.

Pollutants subject to this prohibition include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides, and any other substances that King County, the fire department, Washington State, or the U.S. Environmental Protection Agency has notified the user are a fire hazard or a hazard to the system.

Petroleum Compounds	**Maximum Concentration ppm (mg/L)**
Benzene	0.07
Ethylbenzene	1.7
Toluene	1.4
Total xylenes	2.2

E. Heavy Metals/Cyanide

The industrial user shall not discharge wastes, which exceed the following limitations:

Heavy Metals & Cyanide	Instantaneous Maximum ppm (mg/L)[1]	Daily Average ppm (mg/L)[2]
Arsenic	4.0	1.0
Cadmium	0.6	0.5
Chromium	5.0	2.75
Copper	8.0	3.0
Lead	4.0	2.0
Mercury	0.2	0.1
Nickel	5.0	2.5
Silver	3.0	1.0
Zinc	10.0	5.0
Cyanide	3.0	2.0

[1]The instantaneous maximum is violated whenever the concentration of any sample, including a grab within a series used to calculate daily average concentrations, exceeds the limitation.

[2]The daily average limit is violated: a) for a continuous flow system when a composite sample consisting of four or more consecutive samples collected during a 24-hour period over intervals of 15 minutes or greater exceeds the limitation, or b) for a batch system when any sample exceeds the limitation. A composite sample is defined as at least four grab samples of equal volume taken throughout the processing day from a well-mixed final effluent chamber and analyzed as a single sample.

F. High Temperature

The industrial user shall not discharge material with a temperature in excess of 65° C or 150° F.

G. Hydrogen Sulfide

The following are atmospheric hydrogen sulfide limits as measured at a monitoring location designated by King County:

- Short-Term Limit: 15.0 parts per million volume (ppmv) as a 15-minute average
- 8-Hour Limit: 10.0 ppmv as an 8-hour average
- Weekly Limit: 3.0 ppmv as a 7-day average

More stringent weekly atmospheric hydrogen sulfide limits may be developed and imposed on a case-by-case basis depending on nuisance conditions or risks to workers and sewer infrastructure.

Aqueous soluble sulfide limits may be established on a case-by-case basis depending on the volume of discharge and conditions in the receiving sewer, including oxygen content, pH, and existing sulfide concentrations.

H. Organic Compounds

No person shall discharge any organic pollutants that result in the presence of toxic gases, vapors, or fumes within a public or private sewer or treatment works in a quantity that may cause acute worker health and safety problems. Organic pollutants subject to this restriction include, but are not limited to, the following:

- Any organic compound listed in the "Total Toxic Organics (TTO)" definition provided in 40 CFR Section 433.11(e) and 40 CFR Section 413.02(i)
- Acetone, 2-butanone (MEK), 4-methyl-2-pentanone (MIBK), xylenes

Industrial users are required to implement source control strategies and best management practices to minimize the concentration of any of the aforementioned organic pollutants.

I. Settleable Solids

Settleable solids concentrations: 7.0 ml/L

IV. GENERAL CONDITIONS

A. All requirements of King County Code pertaining to the discharge of wastes into the municipal sewer system are hereby made a condition of this discharge authorization.

B. All pretreatment systems used to bring the permittee's discharge into compliance with King County's discharge limitations and all compliance monitoring equipment shall be maintained continuously in satisfactory and effective operations by the permittee at the permittee's expense and shall be subject to periodic inspections by authorized KCIW personnel. These systems shall be attended at all times during discharge to the King County sewerage system. In the event that such equipment fails, the permittee must notify KCIW immediately and take spill prevention precautions.

C. The industrial discharger shall implement measures to prevent accidental spills or discharges of prohibited substances to the municipal sewer system. Such measures include, but are not limited to, secondary containment of chemicals and wastes, elimination of connections to the municipal sewer system, and spill response equipment.

D. Any facility changes, which will result in a change in the character or volume of the pollutants discharged to the municipal sewer system, must be reported to your KCIW representative. Any changes that will cause the violation of the effluent limitations specified herein will not be allowed.

E. In the event the permittee is unable to comply with any of the conditions of this discharge authorization because of breakdown of equipment or facilities, an accident caused by human error, negligence, or any other cause, such as an act of nature the company shall:

1. Take immediate action to stop, contain, and clean up the unauthorized discharges and correct the problem.

2. Immediately notify KCIW and, if after 5 p.m. weekdays and on weekends, call the emergency King County treatment plant phone number on Page 1 so steps can be taken to prevent damage to the sewer system.

3. For discharge violations, collect a sample and submit new data to KCIW within 14 days of becoming aware of the violation.

4. Submit a written report within 14 days of the event (*14-Day Report*) describing the breakdown, the actual quantity and quality of resulting waste discharged, corrective action taken, and the steps taken to prevent recurrence.

F. Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of the discharge authorization or the resulting liability for failure to comply.

G. The permittee shall, at all reasonable times, allow authorized representatives of KCIW to enter that portion of the premises where an effluent source or disposal system is located or in which any records are required to be kept under the terms and conditions of this authorization.

H. Nothing in this discharge authorization shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including discharge into waters of the state. Any such discharge is subject to regulation and enforcement action by the Washington State Department of Ecology.

I. This discharge authorization does not authorize discharge after its expiration date. If the permittee wishes to continue to discharge after the expiration date, an application must be filed for reissuance of this discharge authorization at least 90 days prior to the expiration date. If the permittee submits its reapplication in the time specified herein, the permittee shall be deemed to have an effective wastewater discharge authorization until KCIW issues or denies the new wastewater discharge authorization. If the permittee fails to file its reapplication in the time period specified herein, the permittee will be deemed to be discharging without authorization.

Compliance Investigator: DocuSigned by: C78B00E60DE34C5... _____ Date: 2/7/2024
Todd Gowing

King County

Industrial Waste Program Self-Monitoring Report

Send to: King County Industrial Waste Program at info.KCIW@kingcounty.gov

Project Name: 7730 202nd Street LLC - Maralco Property Construction Project **Authorization No.:** 1208-01

Project Location: 7730 202nd Street, Kent

Sample Date	pH (s.u.)		Settleable Solids (mL/L)	HEM (non Polar FOG)					Discharge Rate (GPM)	Discharge Volume (gallons)	Name or initials of person collecting and recording samples and volume each day. If permitted for relief only, explain why you did not discharge to surface water for each day of discharge.
	Min.	Max.									
Total Discharge Volume:											

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent

Date

The authorization holder is responsible for monitoring the discharge in accordance with the monitoring requirements specified in King County Discharge Authorization No. 1208-01. This report form must be completed, signed, and submitted to KCIW by **December 15, 2025**.

Your King County Industrial Waste Program Contact: Todd Gowing, 206-477-5426

KENT WASHINGTON
ECONOMIC & COMMUNITY DEVELOPMENT

Permit Center
Location: 400 W. Gowe
Mail to: 220 4th Avenue S. • Kent, WA 98032-5895
(253) 856-5300 FAX: (253) 856-6412
www.KentWa.gov/permitcenter

Rtg. Type	Tracking Number
RI26 RSGF	2 1 __ __ __ __ __
Permit Name	
Date Submitted	
Projected Review Date	

Routing:	❑ BS	❑ PS	❑ PW	❑ FD
# of Copies:				

Grade and Fill Permit Application

☒ Regular Grade and Fill ❑ Simple Grade and Fill

Project Name: Maralco Kent Redevelopment
Project Location: 7730 South 202nd Street Parcel Number 631500-0300
Description of Project: Grading and TESC measures to prepare site for construction of future warehouse facility and the associated site and utility improvements.

Owner
Name: Kyle Siekawitch, Bridge Industrial
Address: 10655 N.E. 4th Street, Suite 212
City: Bellevue, WA Zip: 98004
Phone: 425-749-4325
E-mail: ksiekawitch@bridgeindustrial.com

Contractor - Not selected yet
Name: Company:
Address:
City: Zip:
Phone: Fax:
Contractor I.D. No.:
E-mail:

Architect/Engineer
Name: Dan Balmelli Company: Barghausen Engineers
Address: 18215-72nd Avenue South
City: Kent, WA Zip: 98032
Phone: 425-251-6222 Fax:
License No.: 25672
E-mail: dbalmelli@barghausen.com

Contact
Name: Betsy Dyer/Dan Balmelli Company: Barghausen Engineers
Address: 18215-72nd Avenue South
City: Kent, WA Zip: 98032
Phone: 425-251-6222 Fax:
E-mail: bdyer@barghausen.com/dbalmelli@barghausen.com

Grade and Fill

Earthwork Volume:
Cut 6,050 */ Fill* 54,288 *Total cubic yards* 48,238

Total area of site disturbance:
524,908 *sq ft or* 12 *Acres*
(If more than 1 acre, SWPPP & NPDES permit req'd)

Total Area of New or Replaced Hard Surface:
323,156 *sq ft or* 7.4 *Acres*

Total Cost Estimate: $ 280,888.37
(Cost of civil improvements from Engineer's Cost Est (A+B+C+D))

☐ Plat ☐ Short Plat ☒ Other: Industrial

Plans Include: (Check all that apply)
☒ Grading Plans ☒ TESC (Erosion Control)
☐ Storm Drainage ☐ Delineation of Critical Area
☐ Critical Area Mitigation Plans
☐ Traffic Control Plans (req'd if work in row or lane closure)
☐ Other

I certify that I have read this application and declare under penalty of perjury that the information contained herein is correct and complete. I am either the owner of the property described or I represent the owner or contractor as signified above and am acting with the owner/contractor's full knowledge and consent.

Name (please print) Dan Balmelli, P.E. Signature Daniel K. Balmelli Date 4/6/2022

P.C. OFFICE USE ONLY:

Date Stamp:

P.C. Initials: _____

Instructions and Checklist for Grade and Fill Permit Applications

IN ORDER TO REVIEW AN APPLICATION FOR A GRADE AND FILL PERMIT, THE CITY OF KENT REQUIRES THE FOLLOWING INFORMATION:

REGULAR GRADE AND FILL:

- ☒ **Completed Application Form**
- ☒ **Grading Plan (2 sets)**
  - ❍ Plans must be stamped by a licensed Civil Engineer.
  - ❍ Checklist for Completeness of Engineering Plans and Report Submittals is available at KentWa.gov/PermitCenter/
- ☒ **Technical Reports (2 sets),** which can include:
  - ❍ Storm Drainage T.I.R. per City of Kent Surface Water Design Manual
  - ❍ Soils engineering reports
  - ❍ Geotechnical Report
- ☒ **Wetland Reports/Delineation and/or Mitigation Plans (2 sets) (if applicable)**
  - ❍ Plans and Reports prepared per KCC 11.06 Critical Areas
- ❑ **Tree Plans (2 sets)**
  - ❍ Plans per KCC 15.08.240 Preservation of Trees and KCC 6.10 Street Trees
- ☒ **Temporary Erosion and Sedimentation Control (TESC) Plans (2 sets)**
- ❑ **Traffic Control Plans (if applicable) (2 sets)**
  - ❍ The Traffic Control Plans (TCP) showing how traffic will move safely through the construction area within the public right-of-way per KDCS & MUTCD.
- ☒ **Engineering Cost Estimate (1 copy)**
  - ❍ Total Improvement Cost as determined by Engineer's Cost Estimate Summary. Cost as determined by KDCS Sec. 1.18. Cost shall be based on a construction cost estimate prepared by a licensed contractor, professional engineer or architect. Worksheets for the Engineer's Cost Estimate are included in the KDCS Appendix D, and are available in the Permit Center or online.
- ❑ **Completed Notice of Intent (application)**
  - ❍ For coverage under the WA Dept. of Ecology's NPDES Construction Permit. (if 1 or more acres of disturbance).
- ☒ **Storm Water Pollution Prevention Plan (SWPPP)** (if over 1 acre disturbed) (2 sets)
- ❑ **Copy of approved SEPA DNS/MDNS decision, as applicable**
- ❑ **CD-ROM with All Documents Listed Above in Electronic Format**
  (PDF and AutoCAD where Appropriate)

Select documents are attached to this IAWP Phase 2 Grading Permit Copy.
Documents attached include:
SEPA
Wetland Report
Documents not attached include:
Kent Maralco Cultural Resources 2. Engineers Cost Estimate_Grading_220408_v1
Drawings (dated 2022)
Geo-technical Report
SWPPP (dated 2022)

SIMPLE GRADE AND FILL*:

- ❑ **Completed Application Form**
- ❑ **Grading Site Plan (Four (4) Copies)** which must include:
  - ❍ Vicinity map: Map must show the subject site and any adjacent properties and streets
  - ❍ Legal description
  - ❍ Tax parcel number
  - ❍ Name, address and phone number of the person who prepared the plans.
  - ❍ Checklist for Completeness of Engineering Plans and Report Submittals is available at KentWa.gov/PermitCenter

*Grading for a single property that is in an isolated, self-contained area with no impact to public right-of-way or critical areas. Project must be less than 500cy, clearing less than 3/4 acre, and not need SEPA.

KENT
WASHINGTON
PLANNING SERVICES

Planning Services
Location: 400 W. Gowe • Mail to: 220 4th Avenue South • Kent, WA 98032-5895
Permit Center (253) 856-5302 FAX: (253) 856-6412
www.ci.kent.wa.us/permitcenter

Environmental Checklist Application Form

Public Notice Board and Application Fee...See Fee Schedule

Please print in black ink only.

To be completed by Staff:

Application # _____ KIVA # _____

Received by: _____ Date: _____ Processing Fee: _____

A. Staff review determined that project:

___ Meets the categorically exempt criteria.

___ Has no probable significant adverse environmental impact(s) and application should be processed without further consideration of environmental effects.

___ Has probable, significant impact(s) that can be mitigated through conditions. EIS not necessary.

___ Has probable, significant adverse environmental impact(s). An Environmental Impact Statement will be prepared.

___ An Environmental Impact Statement for this project has already been prepared.

_____ _____
Signature of Responsible Official Date

B. Comments:

_____

_____

_____

C. Type of Permit or Action Requested:

_____

_____

D. Zoning District:

_____

To be completed by Applicant:

SEPA CONTACTS AND PROFESSIONALS

Please fill out applicable boxes for all different professionals:

Applicant
Name: Kyle Siekawitch
Company Name: Bridge Industrial
Contact Person: Kyle Siekawitch
Address: 10655 N.E. 4th Street, Suite 212
City: Bellevue State: WA Zip: 98004
Phones(s): 425-749-4325 Fax:
Email: ksiekawitch@bridgeindustrial.com

Property Owner #1 *(if more than 1 property owner, use additional sheets)*
Name:
Company Name: Bridge Industrial
Contact Person: Kyle Siekawitch
Address: 10655 N.E. 4th Street, Suite 212
City: Bellevue State: WA Zip: 94004
Phones(s): 425-749-4325 Fax:
Email: ksiekawitch@bridgeindustrial.com

Project Contact *(person receiving all project communications if different from applicant)*
Name: Dan Balmelli / Betsy Dyer
Company Name: Barghausen Consulting Engineers, Inc.
Contact Person: Dan Balmelli / Betsy Dyer
Address: 18215 - 72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): (425) 251-6222 Fax: (425) 251-8782
Email: dbalmelli@barghausen.com/bdyer@barghausen.com

Contractor Not selected yet
Company Name: Not selected yet
Engineer Name:
ID#: Exp. Date:
Address:
City: State: Zip:
Phones(s): Fax:
Email:

Architect
Company Name: Synthesis
Engineer Name: Randy Brown
ID#: Exp. Date:
Address: 12503 N.E. Bel-Red Road, Suite 100
City: Bellevue State: WA Zip: 98105
Phones(s): 425-646-18818 Fax:
Email: randy.brown@synthesis.com

Engineer
Company Name: Barghausen Consulting Engineers, Inc.
Engineer Name: Dan Balmelli
ID#: 25672 Exp. Date: 9/23/2021
Address: 18215-72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): 425-251-6222 Fax:
Email: dbalmelli@barghausen.com

Consultant
Company Name: Barghausen Consulting Engineers, Inc.
Engineer Name: Dan Balmelli
Contact Person: Betsy Dyer
Address: 18215 – 72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): 425-251-6222 Fax:
Email: dbalmelli@barghausen.com/bdyer@barghausen.com

To be completed by Applicant:

a. Background Information:

1. Name of Project: Maralco Kent Redevelopment

2. Name of Applicant: Bridge Industrial

   Mailing Address: 10655 N.E. 4th Street, Suite 212, Bellevue, WA 98004

3. Contact Person: Kyle Siekawitch, Bridge Industrial / Dan Balmelli, Barghausen Engineers

   Telephone: 425-749-4325 / 425-251-6222

   (Note that all correspondence will be mailed to the applicant listed above unless a project contact is designated here and on Page 2 of application.)

4. Applicant is (owner, agent, other): Owner

5. **Location**. Give general location of proposed project (street address, nearest intersection of streets and section, township and range). The site is located on the southwest corner of South 202nd Street and 80th Avenue South The site is within a portion of the SE ¼ of Section 1, Township 22N, Range 4E, W.M., Kent, King County, WA
   Site Address: 7730 South 202nd Street

6. **Legal description and tax identification number**

   a. **Legal description (if lengthy, attach as separate sheet.)**: North half of Lot 25 and all of Lots 26 and 27, O'Brien Station Garden Tracts No. 2, according to Plat thereof, recorded in Volume 15 of Plats, page 66, in King County, Washington. See attached ALTA survey and title report.

   b. **Tax identification number:** 631500-0300

7. **Existing conditions**: Give a general description of the property and existing improvements, size, topography, vegetation, soil, drainage, natural features, etc. (If necessary, attach a separate sheet). The site contains an abandoned industrial building previously used as an aluminum smelter with paved parking, stockpiles of Dross, a by-product of the smelting process, and a small residential structure. The site also contains a Category IV wetland (Wetland A) on the eastern portion and two drainage ditches to be treated as a Type 2 stream (Stream Z).

8. Site Area: 12.05 acres Site Dimensions: Approx. 630 ft. x 1080 ft.

9. **Project description:** Give a brief, complete description of the intended use of the property or project including all proposed uses, days and hours of operation and the size of the project and site. (Attach site plans as described in the instructions): The proposed project consists of redeveloping the site for construction of an approximate 178,703 square foot warehouse building on the12.05-acre site located in the City of Kent, King County, Washington. Along with building construction, the project will include demolition of the existing industrial building previously used as an aluminum smelter, removal and cleanup of contaminated soils per Department of Ecology regulations and removal of a residential structure also located on the site. Other site improvements will include grading activities, stormwater facility, water and sanitary sewer extensions and connections, landscaping, franchise utilities and frontage road improvements along South 202nd Street and 80th Avenue South. The eastern portion of the site contains a Category IV wetland (Wetland A) and two drainage ditches to be treated as a Type 3 stream (Stream Z). Portions of the western portion of the wetland will be filled and wetland creation and wetland enhancement will take place on the remaining portion of the wetland on the site. Three potentially regulated wetlands (Offsite Wetlands B-D) are located offsite and are not expected to be impacted.

10. **Schedule:** Describe the timing or schedule (include phasing and construction date, if possible). Construction to start summer of 2022 or as soon as applicable permits are issued.

11. **Future Plans:** Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? If yes, explain. There are no future plans beyond the scope of work outlined in this document.

12. **Permits/Approvals:** List all permits or approvals for this project from local, state, federal, or other agencies for which you have applied or will apply as required for your proposal.

Agency	Permit Type	Date Submitted*	Number	Status**
City of Kent	SEPA			
City of Kent	Critical Areas Approval			
City of Kent	Industrial Design Review			
City of Kent	Critical Area Permit			
City of Kent	Demolition Permit			
City of Kent	Building Permit			
City of Kent	Plumbing and Mechanical Permits			
City of Kent	Fire Permit			
Wash. State Dept. of Labor and Industries	Electrical Permit			
City of Kent	Grading Permit			
City of Kent	Civil Construction Permit			

City of Kent	Water Permit			
City of Kent	Sanitary Sewer Permit			
City of Kent	Street and Street Cut Permit			
City of Kent	Flood Zone Permit			
Department of Ecology	NPDES			
USACE	Section 404			

*Leave blank if not submitted
**Approved, denied or pending

13. **Environmental Information:** List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. Environmental Checklist
Geotechnical Engineering Report
Stormwater Site Plan
Stormwater Pollution Prevention Plan
Wetland and Fish and Wildlife Assessment Report
Conceptual Mitigation Plan

14. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. None are known to exist to our knowledge.

b. **Environmental Elements**

Evaluation for Agency use only

1. Earth

a. General description of the site (circle one):

Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? The site is predominantly flat. The steepest slope is approximately 25 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long term significance and whether the proposal results in removing any of these soils.
Per the geotechnical information report, the site is underlain by granular fill soils and Dross waste material from the aluminum smelting process. One to three feet of existing medium dense to dense sand and gravel fill was found underlying three-inches of asphalt pavement in the northern paved area of the site. A concrete slab over dense sand and gravel fill was found in the southeast corner. Refer to the geotechnical engineering report prepared by Terra Associates, Inc. for additional information.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. None are known to exist to our knowledge.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill. Approximately 6,050 cubic yards of cut and 54,288 cubic yards of fill will be used to prepare site for building construction. Source of fill is unknown at this time but will be from an approved source.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Yes, depending on weather conditions at the time of construction, erosion could occur as a result of construction activities.

Evaluation for Agency use only

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximately 70 percent of the site will be impervious surface upon project completion.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any. A temporary erosion and sedimentation control plan will be designed per City of Kent standards and implemented for the construction phase of the project to reduce and control erosion impacts.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities of known. During the construction phase of the project, emissions from construction equipment would be present from approximately 7 am to 6 pm Monday through Friday. Upon project completion, emissions from vehicular traffic to and from the site would be present from approximately 7 am to 6 pm Monday through Friday.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. None are known to exist to our knowledge.

c. Proposed measures to reduce or control emissions or other impacts to air, if any. Construction equipment will comply with state emissions standards. No other specific measures are proposed.

3. Water

a. Surface Water:

i. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, salt water, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. A Category IV wetland (Wetland A) and two drainage ditches to be treated as a Type 3 stream (Stream Z) are located on the site.

Evaluation for Agency use only

ii. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. Yes, 18,038 square feet of onsite wetland will be impacted by the redevelopment project. Wetland mitigation in the form of wetland creation and enhancement will total 62,194 square feet and buffer enhancement will total 4,994 square feet. Refer to the Wetland and Fish and Wildlife Assessment Report prepared by Soundview Consultants.

iii. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. Approximately 13,044 square feet of fill will be placed in the wetland to prepare the site for proposed redevelopment.

iv. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known. Dewatering may be required during construction depending on weather conditions.

v. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. Yes, the site is located within a 100-year flood plain per FIRM map panel 53033C0986G, dated August 19, 2020.

vi. Does the proposal involve any discharge of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. No waste materials will be discharged to surface waters.

b. Ground Water:

i. Will ground water be withdrawn from a well for drinking or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to ground water? Give general description, purpose, and approximate quantities, if known. No water discharged to ground water under this proposal. Dewatering may be necessary during the construction phase of the project.

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ii. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. No waste materials will be discharged into the ground. All sanitary sewer effluent will be collected and routed into the existing City of Kent sanitary sewer system.

c. Water Runoff (including storm water):

i. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. The source of runoff will be from building rooftop and pavement areas. Stormwater will be routed through a modular wetland for water quality treatment and then to an underground detention vault. Stormwater from the vault will be released to the existing wetland to the south of the site.

ii. Could waste materials enter ground or surface waters? If so, generally describe. No waste material will enter ground or surface waters under this proposal.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any. A storm drainage plan will be designed per City of Kent standards and constructed to control runoff water impacts from the proposed redevelopment.

4. Plants

a. Check or circle types of vegetation found on the site:

- ☒ Deciduous tree: alder, maple, aspen, other _____
- ☐ Evergreen tree: fir, cedar, pine, other _____
- ☒ Shrubs
- ☐ Grass
- ☐ Pasture
- ☐ Crop or grain
- ☐ Orchards, vineyards or other permanent crops

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☐ Wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other _____

☐ Water plants: water lily, eelgrass, milfoil, other _____

☒ Other types of vegetation Himalayan blackberry, non-native invasive Canadian thistle, poison hemlock, beaked hazelnut, colonial bentgrass

b. What kind and amount of vegetation will be removed or altered? All vegetation on the western portions of the site to be redeveloped will be removed. In additional, a total of 18,038 square feet of vegetation will be removed for direct and indirect wetland impacts to support the proposed development. The existing conditions of the wetland are degraded due to the dominance of non-native invasive species and debris waste plies. Wetland creation and enhancement activities and non-compensatory buffer enhancement will include the removal of non-native invasive species and replanting of disturbed areas with native trees, shrubs, and groundcover. Refer to the Wetland and Fish and Wildlife Habitat Assessment Report prepared by Soundview Consultants (2022) and included with this submittal.

c. List threatened or endangered species known to be on or near the site. No threatened and endangered plant species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any. Approximately 46,422 Square feet of depressional wetland will be created and approximately 15,772 square feet of remaining wetland and 59,113 square feet of associated buffer area will be enhanced. For further details, please refer to the Conceptual Mitigation Plan prepared by Soundview Consultants (2022). Landscaping will be designed to City of Kent standards and constructed to enhance vegetation on the site. Areas of wetland to be filled will be mitigated on the site.

e. List all noxious weeds and invasive species known to be on or near the site. Himalayan blackberry, colonial bentgrass, common lady fern, hairy brackenfern, Canadian thistle and poison hemlock are known to be on the site.

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5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

Birds: hawk, heron, eagle, songbirds, other _____

Mammals: deer, bear, elk, beaver, other _____

Fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened or endangered species known to be on or near the site. There are no known threatened or endangered species on or near the site to our knowledge.

c. Is the site part of a migration route? If so, explain. The site, located in Western Washington, lies within the regional Pacific Flyway Migratory Route for birds.

d. Proposed measures to preserve on enhance wildlife, if any. The removal of contaminated soils, wetland enhancement and implementation of new landscaping per City of Kent standards will enhance wildlife on or near the site.

e. List any invasive animal species known to be on or near the site. There are no known invasive animal species on or near the site to our knowledge.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. The proposed building and site will use electricity for lighting and other energy needs and natural gas for heating.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. It is not anticipated that the project will affect the use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any. The building will meet the current energy code requirements. No other specific measures are proposed.

Evaluation for Agency use only

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as result of this proposal? If so, describe. No.

i. Describe any known or possible contamination at the site from present or past uses. The site was previously an aluminum smelter plant and the byproduct of the process, Dross, remains in areas on the site.

ii. Describe existing hazardous chemical conditions that might affect project development and design. This includes liquid and gas transmission pipelines located within the project area and in the vicinity. Stockpiles of Dross, the byproduct of aluminum processing, is located on the site and will be removed and the site cleaned per Department of Ecology regulations.

iii. Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. Fuel necessary for construction equipment would be on the site during the construction phase of the project. No hazardous chemicals are anticipated to be on the site upon project completion.

iv. Describe special emergency services that might be required. Other than fire, police, and medical services already available in the area, no other special emergency services are anticipated.

v. Proposed measures to reduce or control environmental health hazards, if any. A spill prevention plan will be implemented by the contractor for use on the site during the construction phase of the project. No other specific measures are proposed.

Evaluation for Agency use only

b. Noise:

i. What types of noise exist in the area which may affect your project (for example: traffic, equipment operation, other)?

Noise generated from vehicular traffic on area roadways would exist but would not be anticipated to affect the proposed project.

ii. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. On a short-term basis, noise from construction equipment would be present from approximately 7 am to 6 pm Monday through Friday. On a long-term basis, noise from vehicular and truck traffic to and from the site could be present 24/7.

vi. Proposed measures to reduce or control noise impacts, if any. Construction equipment will be maintained, and the use of perimeter and on-site landscaping will help to contain noise levels generated by the proposed redevelopment.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on or nearby or adjacent properties? If so, describe.
The site is an abandoned aluminum smelter. BNRR is located to the west and South 202nd Street is located to the north. All surrounding properties in this area are development as industrial or warehouse use.

b. Has the site been used or working farmlands or working forest lands? If so, describe. Due to the location of the site in the Kent valley area, it is possible the site was used for agriculture in the past. There are currently no working farm or managed forest lands on or near the site.

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c. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not yet been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
There are no agricultural or forest lands on or near the site to our knowledge.

i. Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling and harvesting? If so, how: The proposed development would not be anticipated to affect any working farm or managed forest lands.

d. Describe any structures on the site. One industrial use building and a residential house are located on the site.

e. Will any structures be demolished? If so, what? All structures will be removed for construction of the proposed project.

f. What is the current zoning classification of the site? The zoning classification is I-3 – Heavy Industrial .

g. What is the current comprehensive plan designation for the site? The comprehensive plan designation is Industrial.

h. If applicable, what is the current shoreline master program designation of the site? N/A

i. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify. The eastern portion of the site contains a wetland and a stream.

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j. Approximately how many people would reside or work in the completed project? The exact use of the building is unknown at this time, but per Washington-amended building code, the maximum number of people for the suggested typical warehouse-type occupancy (5% office and 95% warehouse), the calculated number would be 258 people.

k. Approximately how many people would the completed project displace? No persons will be displaced.

l. Proposed measures to avoid or reduce displacement impacts, if any. No specific measures are proposed.

m. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any. The project is an allowable use within the current zoning designation and will be designed to meet City of Kent zoning and development standards.

n. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long term commercial significance, if any. There are no working farm or managed forest lands near the site to our knowledge.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low income housing. N/A

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low income housing. One abandoned residential structure will be removed.

c. Proposed measures to reduce or control housing impacts, if any. N/A

Evaluation for Agency use only

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? Maximum parapet height will be no more than 85-foot as allowed by City of Kent zoning and design standards. The building exterior walls will be constructed of tilt-up concrete panels.

b. What views in the immediate vicinity would be altered or obstructed? Some views from adjacent properties will be altered by as a result of the redevelopment, however, it is not anticipated that any views will be entirely blocked.

c. Proposed measures to reduce or control aesthetic impacts, if any. The building will be designed to meet city of Kent design standards. No other measures are proposed.

11. Light and Glare

a. What type of light or glare will the proposals produce? What time of day would it mainly occur? Glare from building window glass could be present during daylight hours and light from building and parking lot lighting could be present during early morning and evening hours.

b. Could light or glare from the finished project be a safety hazard or interfere with views? It is not anticipated that any potential light or glare produced by the proposed redevelopment of the site would be a safety hazard.

c. What existing off-site sources of light or glare may affect your proposal? Light from vehicular traffic on area roadways and from adjacent developed properties would be present but would not be anticipated to be a safety hazard.

d. Proposed measures to reduce or control light and glare impacts, if any. Window glass will be non-glare and lot lighting will be shielded and directed inward. The use of onsite perimeter landscaping will also help to contain light produced by the development to within in the site.

Evaluation for Agency use only

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? There are no recreational opportunities on or near the site.

b. Would the proposed project displace any existing recreational uses? If so, describe. No recreational uses will be displaced.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any. No specific measures as proposed.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.
No structures on the site are over 45 years old. There is one residential house built located long the northern propoery line that is not shown on County records. A search conducted using the Washington Information System for Architectural or Archeological Records Data (WISAARD) did not list this structure.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.
None are known to exit to our knowledge. No studies have been prepared to date.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.
No assessment of the site has been prepared to date. A search of the site and surrounding areas using the WISAARD data base did not list any properties on or near the site with potential cultural or historic impacts.

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d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
No specific measures are proposed. If cultural artifacts were uncovered on the site during construction, the proper agencies would be contacted.

Transportation

a. Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any. Access to the site will be provided via two driveways onto South 202nd Street.

b. Is site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? No, the nearest transit stop is King County Metro Bus Route 153 at the intersection of South 200th Street and East Valley, approximately 1/2-mile from the site.

c. How many parking spaces would the completed project or non-project proposal have? How many would the project eliminate? Approximately 178 parking spaces will be provided. No parking will be eliminated

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). Yes, half street frontage road improvements along South 202nd Street and 80th Avenue South may be required to include pavement, curb/gutter, sidewalk, street trees, street lighting, and right-of-way dedication as determined necessary by the City of Kent.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. No.

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f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-commercial passenger vehicles). What date or transportation models were used to make these estimates? Per the ITE Trip Generation Manual, 10th Edition, Land Use: 150 Warehousing, approximately 310 daily trips are anticipated to be generated by the proposed project with approximately 39 new weekday AM peak hour trips and approximately 42 new weekday PM peak hour trips.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. There are no farm or forest lands on or near the site to our knowledge.

h. Proposed measures to reduce or control transportation impacts, if any. Construction of roadway improvements and payment of City of Kent traffic mitigation fees will reduce transportation impacts.

14. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. The project is a redevelopment of the site and is not anticipated to create a significant increase to public services.

b. Proposed measures to reduce or control direct impacts on public services, if any. Construction of updated utility systems, payment of system development charges and payment of fire and park impact fees and traffic mitigation fees will control impacts to public services.

15. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

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b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity, which might be needed.

Electricity:	Puget Sound Energy
Natural Gas:	Puget Sound Energy
Water:	City of Kent
Sanitary Sewer:	City of Kent
Telephone:	CenturyLink
Cable:	Comcast
Refuse Service:	Republic Services

C. Signature

I swear under penalty of perjury that all information provided on this document is true and correct to the best of my knowledge.

Signature: Daniel K. Balmelli

Printed Name: Daniel K. Balmelli, P.E.

Position and Agency/Organization: Executive Vice President, Barghausen Consulting Engineers

Date: April 8, 2022

CONCEPTUAL MITIGATION PLAN

MARALCO

APRIL 2022

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

CONCEPTUAL MITIGATION PLAN

MARALCO

APRIL 1, 2022

PROJECT LOCATION
7730 SOUTH 202ND STREET
KENT, WASHINGTON 98032

PREPARED FOR

BRIDGE DEVELOPMENT PARTNERS, LLC
10655 NORTHEAST 4TH STREET, SUITE 500
BELLEVUE, WASHINGTON 98004

PREPARED BY
SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
(253) 514-8952

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Executive Summary

Soundview Consultants LLC (SVC) has been assisting Bridge Development Partners LLC (Applicant) with a conceptual mitigation plan for a proposed industrial redevelopment of a 12.05-acre site located at 7730 South 202nd Street in the City of Kent, Washington. The subject property consists of one tax parcel situated in the Southeast ¼ of Section 1, Township 22 North, Range 04 East, W.M. (King County Tax Parcel Number 631500-0300).

SVC investigated the subject property for potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species in November of 2020, with a follow-up investigation completed in January of 2022. Using current methodology, the site investigations identified and delineated one potentially-regulated wetland (Wetland A) onsite. Two drainages (collectively referred to as Stream Z) were observed bisecting Wetland A. Although Stream Z does not appear to meet the definition of a potentially regulated stream, the Applicant agrees to treat Stream Z as a Type 3 stream. Additionally, three potentially-regulated wetlands (offsite Wetlands B-D) were identified offsite within 275 feet of the subject property. Wetland A and Offsite Wetlands B and C are classified as Category III depressional wetlands and subject to standard 75-foot buffers per Kent City Code (KCC) 11.06.600.B.1. Offsite Wetland D is classified as a Category IV depressional wetland and subject to a standard 50-foot buffer per KCC 11.06.600.B.1. Offsite Wetland D is not anticipated to project a buffer onto the site given its distance from the site. Additionally, the buffer from Offsite Wetland C projects onto the site, however the presence of paved parking lot onsite effectively disrupts the buffer and any potential functions; as a result, the buffer should terminate at the edge of the paved parking lot. Stream Z is subject to standard 50-foot buffer per KCC 11.06.680.C. A 15-foot building setback is required from the outer edge of all critical area buffers per KCC 11.06.600.K. In addition, a majority of the site is located within the Federal Emergency Management Agency (FEMA) designated 100-year floodplain. No other potentially regulated wetlands, waterbodies, fish or wildlife habitat, and/or priority species were identified within 275 feet of the subject property.

The Applicant proposes industrial redevelopment of the subject property to include an industrial warehouse and associated infrastructure including parking, internal site access and space for truck maneuvering / turnaround, stormwater infrastructure, and utilities. The proposed project has been carefully designed to avoid and minimize impacts to the identified wetlands by utilizing the existing developed and / or disturbed upland areas onsite to the greatest extent feasible. However, development feasibility of the warehouse and associated infrastructure is restricted by the encumbrance of Wetland A and the associated buffer on the eastern half of the site. To avoid and minimize impacts to Wetland A, the project will utilize administrative buffer reduction for Wetland A from 75 feet to 60 feet per the minimization measures outlined under KCC 11.06.600.C.2; however, buffer reduction does not allow enough space for the proposed warehouse or required parking. Site design alternations to avoid and reduce impacts include shifting the proposed warehouse further west and thus reducing the building size to less than 180,000 square feet to accommodate the diagonal parcel boundary, eliminating parking stalls within the center of the site near Wetland A, and reducing the building scope to a single-loaded warehouse. Further, utilizing enhanced water quality treatment combined with an underground stormwater vault allows more space for above-ground development, thus minimizing additional critical area impacts. In addition to these avoidance and minimization measures, the project requires the necessary and unavoidable fill of a portion of Wetland A and a portion of Stream Z as permitted under KCC 11.06.690.C as part of the remediation and restoration actions associated with the environmental site clean associated with the black dross, as well as to

accommodate the purpose and need for the proposed industrial development. Additional indirect wetland impacts are also required due to the remaining wetland area abutting the proposed development.

Compensatory mitigation for direct impacts to the low-functioning Category III wetland (Wetland A) and Type 3 stream onsite will be provided by onsite, in-kind stream and wetland creation and enhancement on the northeast corner of the subject property. The proposed stream and wetland mitigation has been designed to utilize the combination mitigation ratios for wetland creation (1:1) and wetland rehabilitation (2:1) outlined by the interagency guidance. However, KCC 11.06.600.D only specifies combined mitigation for wetland creation (1:1) with enhancement (2:1). Given that rehabilitation is preferred over enhancement and is generally required at a lower ratio as discussed in WSDOE et al. (2021), the project will utilize the 2:1 ratio for wetland rehabilitation along with wetland creation to meet mitigation needs that will satisfy local, state, and federal requirements. The proposed onsite, in-kind mitigation actions have been designed utilizing interagency guidance to ensure no net loss of ecological functions onsite of within the greater within the greater Duwamish-Green watershed (WRIA 9). In addition, the buffer will be restored from its current severely degraded condition to further improve ecological functions onsite. A Conceptual Mitigation Plan is included in Chapter 2 of this report.

The summary table below summarizes the identified critical areas and the potential regulatory status by different agencies.

Feature Name Name	Size Onsite	Category/Type[1]	Regulated Under KCC Chapter 11.06	Regulated Under RCW 90.48	Regulated Under Section 404 of the Clean Water Act
Wetland A	34,360 SF	III	**Yes**	**Yes**	**Likely**
Offsite Wetland B	N/A	III	**Yes**	**Yes**	**Likely**
Offsite Wetland C	N/A	III	**Yes**	**Yes**	**Likely**
Offsite Wetland D	N/A	IV	**Yes**	**Yes**	**Likely**
Stream Z	861 linear feet	Type 3	**Yes**	**Yes**	**Likely**

1. Current Washington State Department of Ecology (WSDOE) rating system (Hruby, 2014) per KCC 11.06.580.A; stream typing classification per KCC 11.06.670.C.

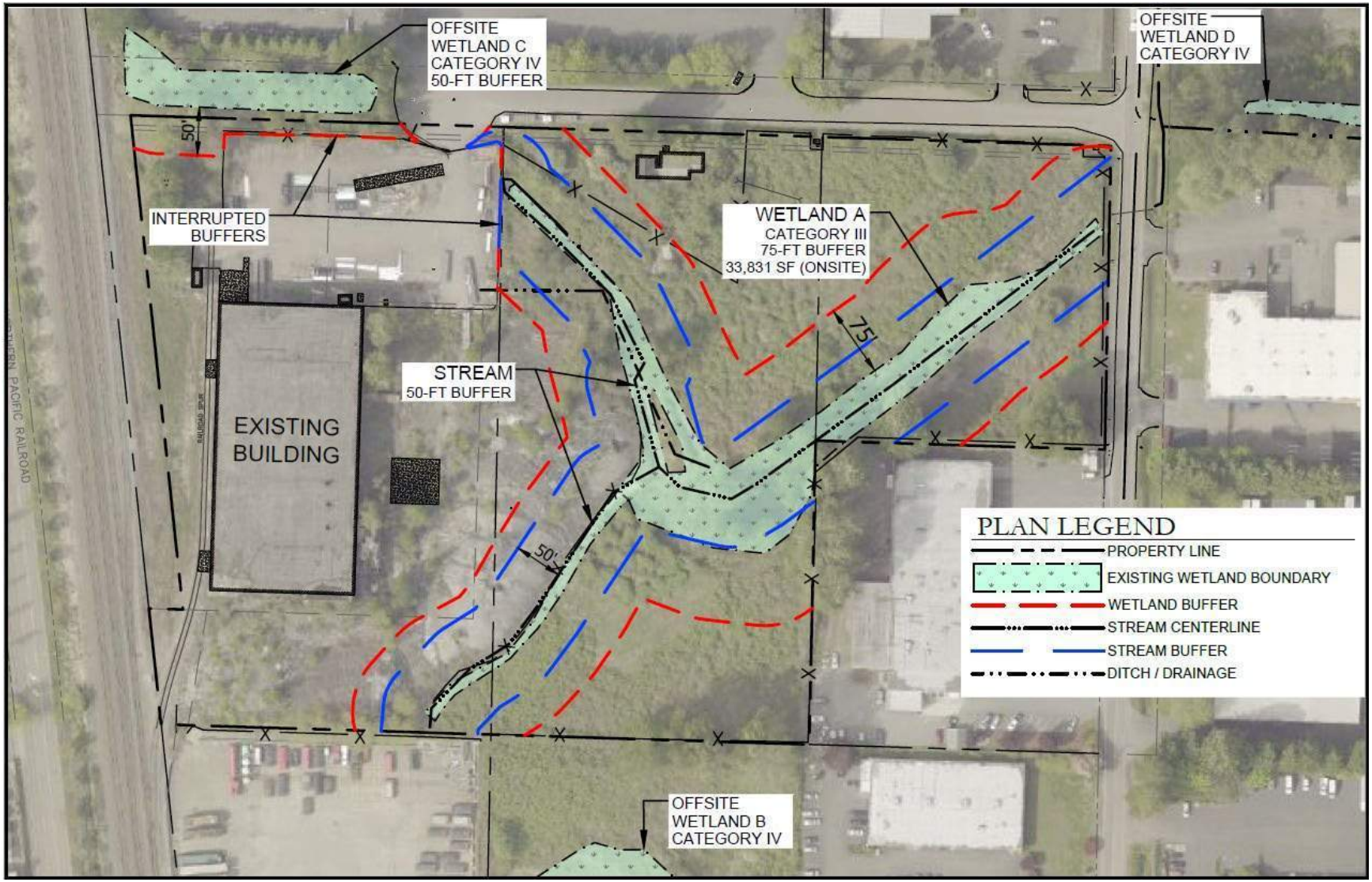
The table below summarizes the proposed critical area impacts.

Critical Area	Category/Type	Impact Type	Impact Area
Wetland A	III	Direct	19,283 SF
Wetland A	III	Indirect	6,527 SF
Stream Z	Type 3	Direct	807 linear feet

The table below summarizes the proposed compensatory and non-compensatory mitigation to offset the proposed critical area impacts.

Mitigation Type	Mitigation Area
Wetland Mitigation	
Wetland Creation	37,529 SF
Wetland Rehabilitation	15,772 SF
Wetland Buffer	
Buffer Restoration	104,992 SF
Wetland as Buffer Enhancement	6,527 SF
Stream Mitigation	
Stream Creation	930 linear feet

Site Map


OFFSITE
WETLAND C
CATEGORY IV
50-FT BUFFER
OFFSITE
WETLAND D
CATEGORY IV
50'
INTERRUPTED
BUFFERS
WETLAND A
CATEGORY III
75-FT BUFFER
33,831 SF (ONSITE)
75'
STREAM
50-FT BUFFER
EXISTING
BUILDING
50'
OFFSITE
WETLAND B
CATEGORY IV
PLAN LEGEND
PROPERTY LINE
EXISTING WETLAND BOUNDARY
WETLAND BUFFER
STREAM CENTERLINE
STREAM BUFFER
DITCH / DRAINAGE

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Chapter 1. Regulatory Considerations

The site investigations in the fall of 2020 and winter of 2022 identified and delineated one potentially-regulated wetland (Wetland A) on the subject property. The Applicant will treat the identified drainages onsite as Type 3 streams to move forward with the permitting process. Additionally, three potentially-regulated wetlands (Wetlands B-D) were identified were identified offsite within 275 feet of the subject property. No other potentially-regulated wetlands, waterbodies, fish and wildlife habitat, or priority species were identified within 275 feet of the subject property during the site investigations.

1.1 Local Regulatory Requirements

1.1.1 Buffer Standards

KCC 11.06.580 has adopted the current wetland rating system for western Washington (Hruby, 2014). Category IV wetlands score less than 16 out of 27 points and generally provide low levels of function; they are typically more disturbed, smaller, and/or more isolated in the landscape than Category I, II, or III wetlands. Wetland A and offsite Wetlands B and C are classified as Category III depressional wetlands with low habitat scores. Current WSDOE guidance on habitat functions is accepted under KCC 11.06.020.B.1. As such, Wetland A and offsite Wetlands B and C are subject to standard 75-foot buffers based on the low habitat function per KCC 11.06.600.B.1. Offsite Wetland D is classified as a Category IV wetland with a habitat score of 3 points each and are subject to standard 50-foot buffers based on their low habitat function. Offsite Wetland D is not anticipated to project a buffer onto the site given its distance from the site. Additionally, the buffer from Offsite Wetland C projects onto the site, however the presence of paved parking lot onsite effectively disrupts the buffer and any potential functions; as a result, the buffer should terminate at the edge of the paved parking lot. Stream Z is subject to standard 50-foot buffer per KCC 11.06.680.C. An additional 15-foot building setback is required from the edge of any wetland buffers per KCC 11.06.600.K.

1.1.2 Wetland Buffer Reduction

Per KCC 11.06.600.B, the buffers of Category III and Category IV wetlands may be reduced to 60 and 40 feet, respectively, provided enhancement measures and minimization measures outlined under KCC 11.06.600.C.2 are implemented for the duration of the proposed project. These measures are outlined in Table 1 below. The project proposes to direct lights and locate noise generating activities away from the identified wetlands, route untreated runoff away from the wetlands and limit use of pesticides in proximity of the wetlands, and to route new runoff from impervious surfaces through enhanced treatment and a stormwater vault to allow for the reduced buffer to be implemented onsite. Please refer to the TESC plan prepared by the Project Engineer for more details regarding the proposed BMPs and TESC measures that will be implemented for the proposed project.

Table 1. Wetland Mitigation Measures

Disturbance	Activities and Uses that Cause Disturbance	Minimization Measures
Lights	• Parking lots • Warehouses • Manufacturing • Residential	• Direct lights away from wetland
Noise	• Manufacturing • Residential	• Locate activity that generates noise away from wetland

Toxic runoff	• Parking lots • Roads • Manufacturing • Residential areas • Application of agricultural pesticides • Landscaping	• Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered • Establish covenants limiting use of pesticides within 150 feet of wetlands • Apply integrated pest management
Change in water regime	• Impermeable surfaces • Lawns • Tilling	• Infiltrate or treat, detain and disperse into buffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	• Residential areas	• Contain pets to prevent disturbance, i.e dog run, chicken coop, etc
Dust	• Tilled fields	• Use best management practices to control dust

The Applicant must demonstrate that by enhancing/restoring the buffer and use of minimization measures, the reduced buffer will function at a level equivalent to or greater than the level of the standard buffer. Prior to approval of a reduced buffer, a critical areas application shall meet all of the following criteria listed in KCC 11.06.600.C.1:

a. It will provide an overall improvement in water quality;

Stormwater runoff from impervious surfaces of the proposed project will be conveyed through enhanced treatment and a stormwater vault. The existing site currently does not have stormwater detention and treatment facilities and the site is highly disturbed with minimal functional buffer screening, filtration or protection. It is anticipated the proposed project will improve water quality functions by increasing runoff storage and conveyance capacity, retention of sediments, and pollution assimilation through the stormwater infrastructure and native woody plantings within the entire onsite buffer area. As such, the proposed project will not adversely affect water quality.

b. It will provide an overall enhancement to fish, wildlife, or their habitat;

Wetland A and the associated buffer onsite are highly degraded due to surrounding industrial development, black dross material from the onsite industrial aluminum manufacturing facility, and the presence of non-native invasive species which provide minimal habitat function for fish and wildlife species. As such, the proposed buffer restoration and mitigation actions will remove all existing degradations including fill material, black dross, and non-native invasive species. The buffer will then be replanted with a variety of native plants which will provide improved habitat conditions and function through establishing diverse vertical and horizontal vegetation strata beneficial to wildlife, resulting in a net gain in ecological function and protection. The buffer restoration actions will provide an overall functional improvement.

c. It will not result in an alteration of current drainage and stormwater detention capabilities;

No stormwater treatment or detention facilities currently exist onsite. Stormwater runoff from impervious surfaces of the proposed project will be conveyed to water quality treatment infrastructure. As such, it is anticipated the proposed project will benefit water quality, drainage and stormwater retention capabilities with the proposed stormwater treatment and buffer restoration actions. The proposed buffer restoration actions are capable of providing

pollutant filtration and increased hydrological infiltration over the existing, compacted and degraded site conditions.

d. It will not lead to unstable earth conditions or create an erosion hazard;

All appropriate erosion control and best management practices (BMP's) will be used to prevent unstable conditions. Runoff will be collected and detained to minimize any potential erosion hazards. This proposal has utilized, to the maximum extent possible, the best available construction, design, and development techniques to ensure the least amount of impact on the critical areas and associated buffer areas on the subject property. BMP's will be implemented that consist of high-visibility fencing (HVF) and silt fencing installed around native vegetation along the reduced perimeter of the remaining buffer, plastic sheeting on stockpiled materials, and seeding of disturbed soils. These BMP's should be installed prior to the start of development actions and actively managed for the duration of the project.

The proposed project has been designed with specific erosion prevention and stabilization elements to avoid the creation of unstable earth conditions and erosion hazards. The developed site will stabilize once all proposed landscaping measures are completed. Prior to final site stabilization, erosion control measures will prevent erosion hazards. The entirety of the reduced buffer will be stabilized and replanted with native seed mix, shrubs and trees.

e. It will not be materially detrimental to any other property or the city as a whole; and

The proposed buffer reduction and restoration actions will not be materially detrimental to other properties or the City; rather, it will provide an improvement in the quality of ecological functions onsite which will benefit the City and local watershed.

f. All exposed areas are stabilized with native vegetation, as appropriate.

The reduced buffer will be enhanced through invasive removal (if necessary) and primarily native plantings which will stabilize the area and provide a net increase in ecological functions onsite when compared to the existing degraded condition of the buffer areas. Further, any remaining disturbed areas will be seeded with a native seed mix.

1.1.3 Mitigation Sequencing

The proposed project includes direct and indirect impacts to Wetland A and direct impacts to a portion of Stream Z onsite. Impacts to wetlands, streams, and associated buffers may be allowed provided that all feasible and reasonable measures under KCC 11.06.380 have been taken to avoid, minimize, and compensate for impacts as described below:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;

The Applicant proposes industrial redevelopment of the subject property to include an industrial warehouse and associated infrastructure including parking, internal site access and space for truck maneuvering / turnaround, stormwater infrastructure, and utilities. In addition, the project requires environmental remediation of the site, including Wetland A and Stream Z. The proposed project has been carefully designed to avoid and minimize impacts to the identified wetlands by utilizing the existing developed and / or disturbed upland areas onsite to the greatest extent feasible. However, development feasibility of the warehouse and associated infrastructure is

restricted by the encumbrance of Wetland A and the associated buffer on the eastern half of the site. To avoid and minimize impacts to Wetland A, the project will utilize administrative buffer reduction for Wetland A from 75 feet to 60 feet per the minimization measures outlined under KCC 11.06.600.C.2; however, buffer reduction does not allow enough space for the proposed warehouse or required parking. Site design alternations to avoid and reduce impacts include shifting the proposed warehouse further west and thus reducing the building size to less than 180,000 square feet to accommodate the diagonal parcel boundary, eliminating parking stalls within the center of the site near Wetland A, and reducing the building scope to a single-loaded warehouse. Further, utilizing enhanced water quality treatment combined with an underground stormwater vault allows more space for above-ground development, thus minimizing additional critical area impacts. In addition to these avoidance and minimization measures, the project requires the necessary and unavoidable impacts to portions of Wetland A and a portion of Stream Z for the environmental remediation actions associated with prior land use of the site as permitted under KCC 11.06.690.C, and in addition the impacted areas need to be utilized for site development to accommodate the purpose and need for the proposed industrial development. Additional indirect wetland impacts are also required due to the remaining wetland area abutting the proposed development.

2. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation;*

   As described above, the direct and indirect impacts to low-functioning Wetland A and a small portion of Stream Z are necessary and unavoidable to all environmental remediation of the site and to support the proposed industrial redevelopment. No other feasible option in site design would result in less impacts to critical areas while allowing reasonable site development due to the encumbrance of Wetland A and the associated buffer on the eastern half of the subject property which severely limits site design options. In addition, site plan has been revised to include stream channel reestablishment along the northern portion of the site after remediation actions. To minimize temporary impacts to the remaining portions of Wetland A during construction, best management practices (BMPs) and temporary erosion and sediment control (TESC) measures including silt fencing between the proposed project and remaining wetland areas will be implemented through the duration of the project.

3. *Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*

   Compensatory mitigation for direct impacts to the low-functioning Category III wetland (Wetland A) and Type 3 stream onsite will be provided by onsite, in-kind stream and wetland creation and enhancement on the northeast corner of the subject property. Compensatory mitigation will be completed after remediation of the proposed restoration and mitigation areas. The proposed onsite, in-kind mitigation actions have been designed utilizing interagency guidance to ensure no net loss of ecological functions onsite of within the greater within the greater Duwamish-Green watershed (WRIA 9). In addition, the buffer will be restored from its current severely degraded and contaminated condition to further improve ecological functions onsite.

4. *Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.*

   The onsite compensatory mitigation actions will also be maintained and monitored for a period of 10 years per USACE requirements (5 years for the City) to ensure success of the project.

Additional potential impacts to critical areas will be reduced over time by the installation of permanent critical area easement signage and fencing between the mitigation area and proposed development in order to discourage trespassing and reduce habitat disturbance.

5. *Compensating for the impact by replacing or providing substitute resources or environments.*

Mitigation for the direct and indirect impacts to low-functioning Wetland A and Stream Z will be provided through onsite, in-kind stream and wetland creation and wetland rehabilitation adjacent to the remaining portions of Wetland A. The proposed mitigation plan will result in an overall ecological lift over the existing degraded conditions of the critical areas proposed to be impacted.

6. *Monitoring the impact and compensation and taking appropriate corrective measures;*

The compensatory mitigation areas will be monitored for a period of 10 years to ensure success of the mitigation actions over time.

1.1.4 Avoiding Wetland Impacts

Per KCC 11.06.610, regulated activities shall not be authorized in wetlands unless the Applicant can demonstrate the following conditions:

1. *The basic project purpose cannot reasonably be accomplished using an alternative site in the general region that is available to the applicant.*

The proposed project cannot reasonably be accomplished using an alternative site in the region that is available to the Applicant. Many of the surrounding properties have already been developed and/or are equally or more encumbered by critical areas or were not available to the Applicant during the project planning stage. Additionally, the site has already been cleared and graded for its existing use with the exception of the eastern half of the subject property which is encumbered with Wetland A and an existing stormwater ditch system (i.e. Stream Z). In addition, the project requires the necessary and unavoidable impacts to portions of Wetland A and a portion of Stream Z for the environmental remediation actions associated with prior land use of the site as permitted under KCC 11.06.690.C. Therefore, there are no alternative sites in the immediate vicinity that are less developed and would require less impacts to critical areas.

2. *A reduction in the size, scope, configuration, or density of the project as proposed, and all alternative designs of the project as proposed that would avoid or result in less adverse impacts on a wetland or its buffer, will not accomplish the basic purpose of the project.*

The proposed project has been designed to avoid and minimize critical area impacts by utilizing the previously developed and / or disturbed upland areas onsite to the greatest extent feasible. As mentioned under 1.1.2 above, site design alternations to avoid and reduce impacts include shifting the proposed warehouse further west and thus reducing the building size to less than 180,000 square feet to accommodate the diagonal parcel boundary, eliminating parking stalls within the center of the site near Wetland A, and reducing the building scope to a single-loaded warehouse. Further, utilizing enhanced water quality treatment combined with an underground stormwater vault allows more space for above-ground industrial development, thus minimizing additional wetland impacts. In addition to these avoidance and minimization measures, the project requires the necessary and unavoidable impacts to portions of Wetland A and a portion of Stream Z for the environmental remediation actions associated with prior land use of the site as permitted under

KCC 11.06.690.C to accommodate the purpose and need for the proposed industrial development.

3. *In cases where the applicant has rejected alternatives to the project as proposed due to constraints such as zoning, deficiencies of infrastructure, or parcel size, the applicant has made a reasonable attempt to remove or accommodate such constraints.*

   Not applicable; the Applicant has not rejected any alternatives due to constraints.

1.1.5 Mitigation Standards

Per KCC 11.06.550.B, adverse impacts to critical area functions shall be mitigated, and mitigation actions shall be implemented in the sequence identified in KCC 11.06.380 (Section 1.1.2 above) to ensure no net loss of wetland ecological functions. Proposed projects that include less preferred or compensatory mitigation shall demonstrate the following:

1. *All feasible and reasonable measures have been taken to reduce impacts and losses to the critical area, or to avoid impacts where avoidance is required by these regulations.*

   The mitigation sequencing under KCC 11.06.380 is described above; parts 1 and 2 under this mitigation sequencing describe the measures taken to avoid and reduce impacts to the onsite wetlands.

2. *The restored, created, or enhanced critical area or buffer will at a minimum be as viable and enduring as the critical area or buffer area it replaces.*

   Mitigation for direct and indirect impacts to Wetland A and direct impacts to Stream Z will be compensated for through onsite, in-kind wetland creation and enhancement on the northeast portion of the subject property. Additionally, buffer enhancement is proposed as these areas are degraded. Wetland A and Stream Z are currently degraded by the presence of non-native invasive species and debris waste piles associated with the existing aluminum processing facility adjacent to the critical areas. Such degradations will be removed, and the mitigation areas will be planted with native trees, shrubs, and groundcover. As such, the proposed compensatory and non-compensatory mitigation actions will provide a net lift in wetland and stream functions when compared to the existing degraded conditions onsite.

3. *In the case of wetlands and streams, no overall net loss will occur in wetland or stream functions and values. The mitigation shall be functionally equivalent to the altered wetland or stream in terms of hydrological, biological, physical, and chemical functions.*

   As mentioned in number 2 above, Wetland A and Stream Z are degraded by the presence of debris piles from the aluminum processing plant and non-native invasive species. Providing the required mitigation will significantly improve ecological functions in terms of hydrological, biological, physical, and chemical functions both onsite and in the greater Duwamish-Green watershed. The wetland mitigation actions have the potential to improve water quality, hydrology, and habitat functions associated with Wetland A by increasing plant structure and diversity which will improve filtration and slow floods, and provide increased habitat for a variety of wildlife. The stream mitigation actions will provide cool, clean, and clear water from the dense native plantings which will provide stream shading, stormwater filtration, and wood recruitment as well as decreased streambank erosion; and a more complex system with natural channel

sinuosity, pool and riffle structure, and large woody debris features for increased habitat suitability and complexity. Overall, these actions will improve water quality, hydrology, and habitat functions onsite by providing increased areas of seasonal ponding and improved plant structure to slow floods and filter pollutants, and by providing a diverse native plant community and increased habitat structures which will provide browse, nesting, and forage for small mammals which will in turn provide prey for raptors and other mammals. Therefore, the proposed mitigation actions are anticipated to provide a net gain in ecological functions when compared to the severely degraded conditions of the wetland and stream/ditch system proposed to be impacted.

4. *In the case of isolated emergent Category III or IV wetlands less than 5,000 square feet in size, avoidance of impacts is not required. However, replacement wetland area must be created pursuant to KCC 11.06.660(D).*

   The identified Category III wetland onsite is not likely considered isolated and is greater than 5,000 square feet in size. All necessary and unavoidable impacts will be appropriately compensated to ensure no net loss of critical area functions, as described in Chapter 2 of this report.

1.1.6 Wetland Mitigation Requirements

According to KCC 11.06.660.A, projects proposing to alter wetlands or associated buffers must engage in restoration, creation, and/or enhancement of the wetland or buffer in order to offset and ensure no net loss of wetland or wetland buffer functions. The project proposes a combination of onsite wetland creation and rehabilitation of the remaining wetland and buffer areas onsite. Per KCC 11.06.660.C.2.a, applicants proposing wetland creation must demonstrate the following:

i. The hydrology and soil conditions at the proposed mitigation site are conducive for sustaining the proposed wetland and that creation of a wetland at the site will not likely cause hydrologic problems elsewhere;

The area proposed for wetland creation is onsite, adjacent to existing portions of Wetland A. Wetland A will also be rehabilitated. Given the location of proposed creation directly adjacent to Wetland A, soil and hydrology conditions at this location are similar in nature to the existing wetland area onsite which will ensure the success of wetland creation actions. Wetland creation proposed in this area will help maintain hydrology by compensating for lost wetland area and providing increased storage compared to the existing, degraded onsite conditions.

ii. The proposed mitigation site does not contain invasive plants or noxious weeds or that such vegetation will be completely eradicated at the site;

The proposed wetland creation area is dominated by Himalayan blackberry, and the existing wetland area to be enhanced contains areas of non-native invasive Himalayan blackberry and reed canarygrass. To prep the mitigation area, this non-native invasive vegetation will be mowed/cut down and new growth will be sprayed as needed with a Washington state Department of Agriculture approved herbicide for aquatic sites prior to planting. Additionally, excavating the area for wetland creation will help remove the established root systems. The continued maintenance and monitoring will ensure effective control and removal of Himalayan blackberry and any other non-native invasive plants or noxious weeds from the area. In addition, much of

the proposed mitigation area will undergo extensive remediation actions, which may include removing contaminated soils, and if necessary replaced with native top soil free of invasive species.

iii. Adjacent land uses and site conditions do not jeopardize the viability of the proposed wetland and buffer (e.g., due to the presence of invasive plants or noxious weeds, stormwater runoff, noise, light, or other impacts); and

Overall land use and site conditions will not jeopardize the viability of the proposed wetland mitigation area. Industrial activities have persisted onsite near Wetland A for several decades; therefore, the industrial redevelopment will not jeopardize the viability of the proposed mitigation actions. Invasive species are present onsite; however, the mitigation actions are proposed to increase habitat and manage invasive species to prevent encroachment into the mitigation area for a period of 10 years. Appropriate critical areas fencing and signage will also be placed around the mitigation site to screen the area from the proposed development and protect the area from other disturbances.

iv. The proposed wetland and buffer are designed to be self-sustaining with little or no long-term maintenance.

The proposed wetland creation and enhancement areas are designed to be self-sustaining following the required timeframe of maintenance and monitoring actions and is anticipated to only require minor long-term maintenance as needed and if required by the USACE. By following the site preparation specifications outlined in Chapter 2 below (e.g., excavation, topsoil installation, and plantings) the wetland creation area will maintain wetland hydrology during the growing season in most years to match the existing, functional, seasonally flooded/saturated wetland. The proposed native species have been carefully selected to ensure the plants take root and thrive in the newly created wetland environments: selection criteria included indicator status and those species that are currently thriving onsite in both wetland and non-wetland areas.

Per KCC 11.06.660.C.3, in addition to the criteria for wetland creation, applicants proposing to enhance wetlands or associated buffers must demonstrate the following:

a. How the proposed enhancement will increase the wetland's or the buffer's functions;

The existing portions of Wetland A and the associated buffer contain limited native vegetation and are largely degraded by the presence of non-native invasive species and presence of debris piles and black dross (aluminum manufacturing byproduct) associated with the existing industrial activities. Rehabilitation actions will remove the existing degradations, decompact topsoil, provide soil amendments as needed, and replant the disturbed areas with native trees, shrubs, and groundcover. Increased vertical and horizontal plant structure and plant species diversity will provide increased browse, cover, and nesting for small mammals, which in turn provide prey for raptors and other mammals. Additionally, the establishment of persistent native vegetation has the potential to increase water quality and hydrology for water leaving the project site by improving filtration and providing more structure to slow flooding. Overall, these actions will result in a net increase in ecological functions both onsite and within the greater Duwamish-Green watershed.

b. How this increase in function will adequately compensate for the impacts; and

Compensatory mitigation will be provided by onsite, in-kind wetland creation and rehabilitation. Additional buffer restoration will be provided to increase ecological functions. Given the

extremely degraded existing conditions of the critical areas, such mitigation actions will provide a net lift in ecological functions.

c. How all other existing wetland functions at the mitigation site will be protected.

The mitigation site will be monitored for a period of 10 years to ensure its successful establishment. In addition, critical areas fencing and signage will be placed around the entire mitigation site to screen the wetland from the proposed development and minimize disturbances. Further, the mitigation site will be placed in a separate critical areas tract to prohibit development in perpetuity.

1.1.7 Stream Alteration or Development Standards and Criteria

According to KCC 11.06.690, alteration of streams or their established buffers may be permitted by if the Applicant can demonstrate the following criteria:

A. Alteration shall not degrade the functions and values of the stream.

The existing stream consists of linear ditches with vertical sides lined with plastic associated with prior remediation actions. The stream is highly degraded due to the presence of non-native invasive species and black dross (a byproduct of the aluminum processing facility currently onsite). As such, any alteration to the stream will not degrade the functions and values of the stream as they are highly degraded and manipulated. Further, the proposed impacts to the stream will be offset through stream channel creation at a minimum 1:1 ratio. The stream mitigation actions will provide cool, clean, and clear water from the dense native plantings which will provide stream shading, stormwater filtration, and wood recruitment as well as decreased streambank erosion; and a more complex system with natural channel sinuosity, pool and riffle structure, and large woody debris features for increased habitat suitability and complexity. Overall, these actions will improve water quality, hydrology, and habitat functions onsite by providing increased areas of seasonal ponding and improved plant structure to slow floods and filter pollutants, and by providing a diverse native plant community and increased habitat structures which will provide browse, nesting, and forage for small mammals which will in turn provide prey for raptors and other mammals.

B. Activities located in water bodies and associated buffers used by anadromous fish shall give special consideration to the preservation and enhancement of fish habitat, including but not limited to the following:

1. *The activity is timed to occur only within the allowable work window for the particular species as identified by the Washington Department of Fish and Wildlife.*
2. *The activity is designed so as not to degrade the functions and values of the habitat and any impacts are mitigated.*
3. *An alternate location or design is not feasible.*

Stream Z is a manipulated stormwater ditch that is treated as a Type 3 stream, a non-fish-bearing water; no fish have been observed or documented within the stream proposed to be impacted. As such, these criteria are not applicable.

C. Relocation of a Type 2 or 3 stream solely to facilitate general site design shall not be permitted. Relocation of a stream may be permitted only when it is part of an approved mitigation or enhancement/restoration plan, and will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream.

Stream Z is not being relocated solely to facilitate site design. As described above under criterion A, the existing stream functions as a stormwater ditch and is highly degraded and manipulated. In addition, the project requires the necessary and unavoidable impacts to portions of Wetland A and a portion of Stream Z for the environmental remediation actions associated with prior land use of the site as permitted under KCC 11.06.690. The proposed redevelopment will continue industrial use onsite while allowing the opportunity for the stream channel to be significantly improved. The proposed stream channel creation activities will consist of pulled back stream banks above OHW and will be planted to create native forest, shrub, and emergent plant communities that are currently absent onsite. The stream channel creation will increase floodwater retention, decrease streambank erosion, and provide a more complex system with natural channel sinuosity, pool and riffle structure, and large woody debris features for increased habitat suitability and complexity. Overall, the proposed stream relocation/restoration is anticipated to increase ecological functions when compared to the degraded condition of the existing stream channel proposed to be impacted.

D. *All new culverts shall be designed following guidance provided in the Washington Department of Fish and Wildlife's document: Water Crossing Design Guidelines, 2013 (or most recent version thereof). The applicant shall obtain a HPA from the Department of Fish and Wildlife. Culverts are allowed only in Types 2 and 3.*

   One new culvert is proposed along Stream Z (Type 3) to allow safe site access and vehicle circulation which will require an HPA permit authorization from WDFW. The culvert will be designed using WDFW's design criteria, although design standards based on fish use are not applicable.

E. *The applicant or successors shall, at all times, keep any culvert free of debris and sediment to allow free passage of water and, if applicable, fish.*

   The existing and proposed culverts onsite will be kept free of debris and sediment to allow free passage of water.

F. *The city may require that a culvert be removed from a stream as a condition of approval, unless the culvert is not detrimental to fish habitat or water quality, or removal would be a long-term detriment to fish or wildlife habitat or water quality.*

   Due to the severity of degradation and manipulation along and within Stream Z, the stream lacks the necessary habitat and conditions to support fish. As such, the removal of onsite culverts would be unnecessary as no fish have been observed or documented within the stream and the existing culverts are not detrimental to habitat or water quality.

1.2 State and Federal Considerations

In a December 2, 2008 memorandum from the Environmental Protection Agency (EPA) and USACE, joint guidance is provided that describes waters that are to be regulated under section 404 of the CWA (USACE, 2008). This memorandum was amended on February 2, 2012 where the EPA and USACE issued a final guidance letter on waters protected by the CWA.

The 2012 guidance describes the following waters where jurisdiction would be asserted: 1) traditional navigable waters, 2) interstate waters, 3) wetlands adjacent to traditional navigable waters, 4) non-

navigable tributaries of traditional navigable waters that are relatively permanent meaning they contain water at least seasonally (e.g. typically three months and does not include ephemeral waters), and 5) wetlands that directly abut permanent waters. The regulated waters are those associated with naturally occurring waters and water courses and not artificial waters (i.e. stormwater pond outfalls).

The 2012 memorandum further goes on to describe waters where jurisdiction would likely require further analysis: 1) Tributaries to traditional navigable waters or interstate waters, 2) Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters, and 3) Waters that fall under the "other waters" category of the regulations.

In addition, the 2012 guidance identifies thirteen waters or areas where jurisdiction will not be asserted: 1) Wet areas that are not tributaries or open waters and do not meet the agencies regulatory definition of "wetlands", 2) Waters excluded from coverage under the CWA by existing regulations, 3) Waters that lack a "significant nexus: where one is required for a water to be jurisdictional, 4) Artificially irrigated areas that would revert to upland if the irrigation ceased, 5) Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, 6) Artificial reflecting pools or swimming pools excavated in uplands, 7) Small ornamental waters created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and puddles, 8) Water-filled depressions created incidental to construction activity, 9) Groundwater, including groundwater drained through subsurface drainage systems, 10) Erosional features (gullies and rills), 11) Non-wetland swales, 12) Ditches that are excavated wholly in uplands, drain only uplands or non-jurisdictional waters, and have no more than ephemeral flow, and 13) Ditches that do not contribute flow, either directly or through other waterbodies, to a traditional navigable water, interstate water, or territorial sea.

Wetland A, offsite Wetlands B-D, and the onsite ditches (Stream Z) are likely regulated by the USACE as WOTUS through Category 4 above. The wetlands all drain northwest to the B-86 ditch west of the subject property, which has at least a seasonal surface water connection to Mill Creek, a tributary to a traditionally navigable water. Additionally, the identified wetlands and ditches are likely regulated by the WSDOE through the Revised Code of Washington (RCW) 90.48.

Chapter 2. Conceptual Mitigation Plan

The proposed mitigation actions for the project attempt to strike a balance between achieving project goals as well as a positive result for the watershed and the critical area functions within the confines of the site. In general, joint USACE and EPA rules have been established that require for more careful mitigation planning efforts utilizing a watershed approach in site selection (USACE & EPA, 2008). The proposed impacts and mitigation actions attempt to closely adhere to these rules and to the local critical areas regulations specified in KCC 11.06 while also utilizing the best available science (Granger et al., 2005; Hruby et al., 2009; Sheldon et al., 2005; WSDOE et al., 2006; and WSDOE et al. 2021). This chapter presents the mitigation details for the proposed industrial project.

2.1 Purpose and Need

The purpose of the proposed project is to provide industrial redevelopment and associated infrastructure within the City of Kent to expand the local economy by providing new jobs and new services to the area. The industrial redevelopment provides a unique opportunity to take an existing highly degraded and contaminated ditch system (Stream Z) and wetland and creating a new, highly functional channel and wetland mitigation area that will increase water quality, hydrologic, and habitat functions within the Mill Creek basin.

2.2 Description of Impacts

The Applicant proposes industrial redevelopment of the subject property to include an industrial warehouse and associated infrastructure including parking, internal site access and space for truck maneuvering / turnaround, stormwater infrastructure, and utilities. The proposed project has been carefully designed to avoid and minimize impacts to the identified wetlands by utilizing the existing developed and / or disturbed upland areas onsite to the greatest extent feasible. However, development feasibility of the warehouse and associated infrastructure is restricted by the encumbrance of Wetland A and the associated buffer on the eastern half of the site. To avoid and minimize impacts to Wetland A, the project will utilize administrative buffer reduction for Wetland A from 75 feet to 60 feet per the minimization measures outlined under KCC 11.06.600.C.2; however, buffer reduction does not allow enough space for the proposed warehouse or required parking. In addition to these avoidance and minimization measures, the project requires the necessary and unavoidable impacts to portions of Wetland A and a portion of Stream Z for the environmental remediation actions associated with prior land use of the site as permitted under KCC 11.06.690.C. Site design alternations to avoid and reduce impacts include shifting the proposed warehouse further west and thus reducing the building size to less than 180,000 square feet to accommodate the diagonal parcel boundary, eliminating parking stalls within the center of the site near Wetland A, and reducing the building scope to a single-loaded warehouse. Further, utilizing enhanced water quality treatment combined with an underground stormwater vault allows more space for above-ground development, thus minimizing additional critical area impacts. Additional indirect wetland impacts are also required due to the remaining wetland area abutting the proposed development.

2.2.1 Wetland Impacts

A summary of wetland impacts is provided in Table 2 and a wetland function impact analysis is outlined below.

- **Water Quality:** The wetland proposed to be filled is a depressional wetland that exhibits primarily seasonal saturation with some areas of seasonal flooding. Opportunity for Wetland A to provide water quality functions is moderate due to the surrounding landscape which provides a source of pollutants. The value of water quality functions provided by Wetland A is also increased as water quality is an issue in the sub-basin. However, in general Wetland A can only provide limited pollutant filtration as persistent, ungrazed plants and areas with seasonal ponding cover less than half of the wetland unit. Additionally, Wetland A is bisected by two stormwater ditches that convey flow away from the wetland during storm events, reducing the time that the wetland has to filter pollutants. Water quality functions will be improved and replaced via onsite compensatory wetland creation adjacent to the remaining portions of Wetland A on the northeast corner of the subject property.

- **Hydrologic:** Hydrology for Wetland A is provided by direct precipitation, surface sheet flow, and a seasonally high groundwater table. Opportunity for Wetland A to provide hydrologic functions is moderate due to the moderate size of the wetland relative to its contributing basin, the presence of stormwater discharges and land uses that generate excess runoff, and the presence of surface flood problems in a sub-basin further down gradient of the wetland. However, these functions are limited due to the presence of an intermittent outlet and the shallow storage depth of the wetland which limit how much flood storage the wetland can accommodate. Hydrologic functions will be improved and replaced via onsite compensatory wetland creation adjacent to the remaining portions of Wetland A on the northeast corner of the subject property.

- **Habitat:** Wetland A provides minimal habitat functions due its location in an urban industrial setting, environmental contamination and surrounding development which impedes habitat accessibility. Additionally, Wetland A has low habitat interspersion and species richness, and is encumbered with non-native Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*). Due to the low-functioning habitat conditions, the proposed wetland fill will result in limited habitat removal. Wetland habitat functions will be replaced and increased via the proposed onsite wetland creation adjacent to the remaining portions of Wetland A on the northeast corner of the subject property.

Table 2. Wetland Impact Summary

Wetland	Onsite Area (acre)	HGM[1]	Cowardin Class[2]	WSDOE Rating[3]	Impact Type	Impact Area
A	0.79	Depressional	PFO/EMBC	IV	Direct	19,283 SF (0.44 acre)
A	0.79	Depressional	PFO/EMBC	IV	Indirect	6,527 SF (0.15 acre)

Notes:
1. Brinson, M. M. (1993).
2. WSDOE rating according to Washington State wetland rating system for Western Washington – Revised (Hruby, 2014).
3. Cowardin et al. (1979); Federal Geographic Data Committee (2013); class based on vegetation: PFO = Palustrine Forested, PEM = Palustrine Emergent. Modifiers for Water Regime: B = Seasonally Saturated, C = Seasonally Flooded.

2.2.2 Stream Impacts

The onsite Stream Z currently functions as a stormwater ditch and is currently lined with plastic as part of the incomplete remediation actions onsite. The stream provides low-quality habitat due to the presence of black dross within and around the channel associated with the existing aluminum processing facility onsite and the lack of channel complexity, in-stream habitat structures, floodplain connectivity and riparian cover. A portion of the onsite stream channel will be permanently filled. A summary of the impacted stream is provided in Table 3 below. Existing habitat conditions within the channel are described in Table 4.

Table 3. Stream Impact Summary

Stream	Type[1]	Impact Type	Impact Area
Z	Type 3	Direct	807 linear feet

Notes:
1. Stream typing classification per KCC 11.06.670.C.

Table 4. Summary of Existing Stream Habitat Conditions.

Habitat Parameter	Existing Conditions
Habitat Accessibility	Degraded – the existing channels act as stormwater conveyance and are far removed from functional stream habitat farther downgradient in the basin.
Riparian Buffer	Degraded – Streambanks are lined with narrow strip of vegetation dominated by non-native, invasive reed canarygrass and Himalayan blackberry with few willows. Stream shading is minimal due to lack of woody vegetation.
Channel Morphology	Minimally complex – Linear excavated channel with stagnant flows. The excavated streambanks are almost vertical. Pool and riffle features are absent.
Off-Channel Habitat and Flood Refugia	Absent – No off-channels are present within Stream Z and the vertical banks do not support flood attenuation.
Substrate Composition	Unconsolidated material and ash – Substrate is likely sourced from an adjacent ash-waste pile located on the central portion of the subject property. The entire ditch is also lined with plastic which severely limits natural stream functions.
Large Woody Debris (LWD)	Absent from the highly modified and degraded linear stream channel.
Small Woody Debris	Low presence – Some small woody debris is present. Thickets of non-native invasive Himalayan blackberry provide limited small woody debris along the stream.
Peak and Base Flows	Summer base flows are low. Even at peak flows in the wet season, hydrology is mostly stagnant.
Floodplain Capacity and Wetland Connectivity	Floodplain capacity is extremely limited by the linear, ditched channels. One low-functioning depressional wetland with limited accessible habitat is located along the existing stream. However, the wetland does not receive any overbank flooding from the ditch/stream.
Water Quality	Degraded – Onsite water quality is likely degraded by a lack of functioning riparian buffer, location within in an urban industrial environment, and presence of black dross material from the aluminum processing operations near the channels.

2.3 Mitigation Strategy

Compensatory mitigation for direct impacts to the low-functioning Category III wetland (Wetland A) and a portion of Stream Z onsite will be provided by onsite, in-kind wetland creation and rehabilitation on the northeast corner of the subject property, after remediation actions. The proposed mitigation has been designed utilizing interagency guidance and local requirements per KCC 11.06.600.D to

ensure no net loss of ecological functions onsite and within the greater Duwamish-Green watershed (WRIA 9). In addition, the buffer will be restored to further improve ecological functions onsite. A stream and wetland mitigation summary is provided in Table 5. Refer to Appendix A for a detailed mitigation and planting plan.

The mitigation actions will include, but may not be limited to, the following recommendations:

- Pre-treat invasive plants with a Washington Department of Agriculture approved herbicide. After pre-treatment, grub to remove the invasive plants and replant all cleared areas with native trees, shrubs, and ground covers listed in Appendix A; Pre-treatment of the invasive plants should occur a minimum of two weeks prior to removal;
- Excavate an area contiguous with Wetland A for wetland creation that will hold sufficient wetland hydrology;
- Excavate a new channel for Stream Z within a new riparian corridor;
- Replant all mitigation areas with native trees, shrubs, and groundcovers listed in Appendix A, or substitutes approved by the responsible Project Scientist to help retain soils, filter stormwater, and increase biodiversity;
- Install special habitat features, such as large woody debris (LWD) and snags, to provide increased habitat structures for wildlife;
- An approved native seed mix will be used to seed the disturbed areas after planting;
- Maintain and control invasive plants annually, at a minimum, or more frequently if necessary. Maintenance to reduce the growth and spread of invasive plants is not restricted to chemical applications but may include hand removal, if warranted;
- Provide dry-season irrigation as necessary to ensure native plant survival;
- Direct exterior lights away from the critical areas wherever possible; and
- Place all activities that generate excessive noise (e.g., generators and air conditioning equipment) away from the remaining critical areas where feasible.

Table 5. Summary of Proposed Mitigation

Mitigation Type	Mitigation Ratio	Mitigation Area Provided
Wetland Creation	1:1	37,529 SF; 0.86 AC
Wetland Rehabilitation	2:1	13,770 SF; 0.32 AC
Stream Creation	1:1	930 linear feet
Non-Compensatory Buffer Restoration	No credit	104,992 SF; 2.41 AC

2.3.1 Wetland Mitigation

The proposed wetland mitigation has been designed to utilize the combination mitigation ratios for wetland creation (1:1) and wetland rehabilitation (2:1) outlined by the interagency guidance (WSDOE et al., 2021). However, KCC 11.06.600.D only specifies combined mitigation for wetland creation (1:1) with enhancement (2:1). Given that rehabilitation is preferred over enhancement and is generally required at a lower ratio as discussed in WSDOE et al. (2021), the project will utilize the 2:1 ratio for wetland rehabilitation along with wetland creation to meet mitigation needs that will satisfy local, state, and federal requirements. It should be noted that the site has the opportunity to provide nearly double

the required amount of wetland creation, which will be utilized to account for the shortfall in wetland rehabilitation as it is the more preferred type of mitigation.

Wetland creation actions are proposed adjacent to Wetland A and Stream Z. A combined mitigation ratio of 1:1 is required when rehabilitation and/or enhancement is also proposed. The proposed project will provide a 1.95:1 ratio for wetland creation, thus resulting in nearly double the wetland area onsite. Depressional wetland areas will be created along Stream Z to compensate for the Category III wetland impacts. These areas are conducive to wetland creation given that they are at similar elevation adjacent to the existing wetland and located in the valley floor. Soils will be excavated to provide necessary depressions to hold sufficient hydrology to generate wetland conditions, and areas will be excavated to the existing groundwater table if possible. Organic topsoil, likely from an offsite supplier but potentially sourced onsite, will then be placed to provide suitable substrate for the proposed native plantings. In addition to the native plantings, special habitat features including LWD and snags will be installed to increase habitat complexity. The mitigation plan proposes an increase in vertical and horizontal canopy structure by planting a variety of native tree, shrub, and groundcover species appropriately located to match existing species wetland indicator statuses and local topography.

In addition to the proposed wetland creation area, the remaining portions of Wetland A will be rehabilitated. The existing wetland area is degraded due to the presence of trash and debris, black dross associated with the aluminum processing facility onsite, dominance of non-native invasive species, and old fill material and compacted soils. Therefore, such degradations will be removed, the ground surface will be decompacted, soil amendments will be added as needed, and native plantings will be installed to increase vertical and horizontal structure and increase species diversity and habitat complexity. The associated buffer areas onsite will be also be restored through similar measures and planted with plant species suitable for drier areas. The proposed restoration actions will further increase ecological functions onsite and help ensure the success of the wetland creation area by removing non-native invasive species that could encroach upon and overtake the mitigation site. The increased plant structure and diversity has the potential to improve water quality and hydrology for water leaving the site by improving filtration and providing plant structure that can adequately slow floods.

Through careful design and utilization of best available science, the proposed mitigation plan has a high probability of success and persistence. By following the site preparation specifications outlined herein (e.g., excavation, topsoil installation, and plantings) the wetland creation area will maintain wetland hydrology during the growing season in most years to match the existing, functional, seasonally flooded/saturated wetland. The proposed native species have been carefully selected to ensure the plants take root and thrive in the newly created and existing wetland environments: selection criteria included indicator status and those species that are currently thriving onsite in both wetland and non-wetland areas. With construction of the mitigation site, establishment of the protective buffers, installation of permanent fencing and signage around the entire conservation easement, and implementation of the required monitoring and maintenance actions, the mitigation area is projected to be a highly functional, persistent, and successful mitigation site.

2.3.2 Stream Mitigation

The existing Stream Z channel acts as a stormwater conveyance system that is severely degraded due to the plastic lining, steep cut banks, and lack of sinuosity. Stream channel creation will result in a net gain in stream length onsite due to the creation of multiple channels as off-channel habitat. The

stream mitigation actions will provide cool, clean, and clear water from the dense native plantings which will provide stream shading, stormwater filtration, and wood recruitment as well as decreased streambank erosion; and a more complex system with natural channel sinuosity, pool and riffle structure, and large woody debris features for increased habitat suitability and complexity. Overall, these actions will improve water quality, hydrology, and habitat functions onsite by providing increased areas of seasonal ponding and improved plant structure to slow floods and filter pollutants, and by providing a diverse native plant community and increased habitat structures which will provide browse, nesting, and forage for small mammals which will in turn provide prey for raptors and other mammals. The proposed establishment of a new, higher functioning stream channel within an enhanced riparian corridor will increase habitat suitability and complexity for a wide range of fauna over time which will greatly benefit the local sub-basin and greater watershed.

2.3.3 Perimeter Buffers

All compensatory mitigation areas will be protected by an established perimeter buffer as applicable. Per Table 6C-3 of the joint mitigation guidance (WSDOE et al., 2021), Category III wetlands with low habitat functions typically receive a 80-foot buffer for adjacent high land use intensity, 60-foot buffers for adjacent moderate land use intensity, and a 40-foot buffer for adjacent low land use intensity. However, the project will implement additional measures to reduce the required perimeter buffers adjacent to the onsite development from the buffer width required for high intensity to the buffer required for moderate intensity land use. Such measures will include planting a dense screen of native plantings along the development side to provide increased screening, filtration of sediments and pollutants, and slow surface runoff, as well as installing large woody debris for additional habitat suitability and complexity for a wide range of urban fauna. Therefore, the mitigation areas associated with Wetland A and Stream Z will receive a 60-foot perimeter buffer

2.4 Approach and Mitigation Implementation

The onsite mitigation actions will occur concurrently with the development of the project. A pre-construction meeting will be held between the Applicant, general contractor, and the consulting Scientist to discuss the project and limitations specifically related to protection of critical areas and implementation of mitigation actions.

Equipment used will be typical for land clearing, grading, and excavation activities and will be kept in good working conditions and free of leaks. Equipment to be used will likely include excavators, backhoes, bulldozers, dump trucks, graders, et cetera. All equipment staging and materials stockpiles will be kept out of wetlands and regulated buffers, and the area will be kept free of spills and/or hazardous materials. All clean fill material will be sourced from upland areas onsite or from approved suppliers and will be free of pollutants and hazardous materials.

All appropriate BMPs and TESC measures, including dedicated construction entrance(s), silt fencing, and brush barriers, will be installed prior to and maintained throughout construction in order to minimize potential temporary impacts to Wetland A, as outlined in the TESC plan prepared by the Project Engineer. As no work windows are expected to limit the construction schedule, this schedule is flexible, and site work will likely commence as soon as permits are issued and the site is able to support heavy equipment.

The project sequencing will be as follows:

- Pre-construction conferences and regulatory notifications;

- Pre-treatment of non-native invasive plant species;
- Install TESC measures;
- Remove debris and invasive plant material from the wetland creation and other mitigation areas;
- Rough grade the wetland and stream creation areas according to the approved grading plan;
- Rough grade inspection;
- Finish grade and prepare grounds for planting in all mitigation areas;
- Install LWD and snags;
- Seed entire mitigation area;
- Monitor site hydrology if necessary;
- Plant inspections;
- Install plant materials;
- Post-construction inspection and as-built survey; and
- Post-construction maintenance, monitoring, and annual reporting.

2.5 Goals, Objectives, and Performance Standards

The goals and objectives for the onsite mitigation actions are based on replacing wetland and stream functions lost by the proposed impacts to Wetland A and Stream Z temporary construction impacts and increasing wetland and buffer functions given their existing degraded state. These actions are capable of increasing existing water quality and hydrologic functions and providing a moderate level of habitat function for wetland-associated wildlife. The goals and objectives of the proposed mitigation actions are as follows:

Goal 1 – Partially compensate for the approximately 19,283 square feet of direct impacts and 6,527 square feet of indirect impacts to Wetland A by creating 37,529 square feet of depressional wetland area contiguous with Wetland A.

Objective 1.1 – Establish wetland hydrology in the wetland creation area associated with Wetland A by excavating depressional areas (approximately 12 to 18 inches of material) to tie into the existing groundwater elevation.

Performance Standard 1.1.1 – The wetland creation area will have seasonally saturated soils (or greater hydroperiod) within 12 inches of the surface over for a minimum of 14 consecutive days early in the growing season (March – May) in years with normal precipitation levels over the monitoring period.

Performance Standard 1.1.2 – The compensatory wetland creation area will measure at least 37,529 square feet in size as demonstrated by wetland delineation during the monitoring event conducted in Year 10 of the monitoring period. *The wetland area will be delineated using the 1987 Army Corps of Engineers Delineation Manual and the Western Mountains, Valleys, and Coast Regional Supplement, Version 2 (May 2010).*

Objective 1.2 – Establish wetland habitat with diverse horizontal and vertical vegetation structure and species richness to provide habitat for wetland-associated wildlife over the compensatory wetland creation area.

Performance Standard 1.2.1 – By the end of Year 10, the compensatory wetland creation areas will have at least 3 native tree species and 5 native shrubs species; native volunteer species will be included in the count. This Performance Standard will be achieved by the end of Year 5 as well, to satisfy mitigation requirements for the City of Kent. To be considered, the native species must make up at least 5 percent of the vegetation class.

Performance Standard 1.2.2 – State-listed, Class A noxious weeds must be completely eliminated from the wetland areas in all monitoring years and invasive species that are not considered state-listed, Class-A noxious weeds shall not exceed 20 percent aerial cover in the wetland areas in all monitoring years.

Performance Standard 1.2.3 - Minimum plant survivorship within the wetland creation areas will be at 100 percent of installed trees and shrubs at the end of Year 1 (utilization of native recruits and replacement of lost plants allowed), 85 percent at the end of Year 2, and 80 percent at the end of year 3.

Performance Standard 1.2.4 – Minimum native woody species total areal cover within the wetland creation areas will be at 20 percent total cover at the end of Year 2, 25 percent at the end of Year 3, 30 percent at the end of Year 4, 40 percent at the end of Year 5, 60 percent at the end of Year 7, and 65 percent at the end of Year 10.

Goal 2 – Partially compensate for the approximately 19,283 square feet of direct impacts and 6,527 square feet of indirect impacts to Wetland A by rehabilitating 13,770 square feet of depressional wetland area.

Objective 2.1 – Rehabilitate a total of 13,770 square feet of existing emergent wetland area in Wetland A with a suite of native trees and shrubs to create diverse horizontal and vertical vegetation structure and additional wildlife habitat.

Performance Standard 2.1.1 – By the end of Year 10, the compensatory wetland rehabilitation areas will have at least 3 native tree species and 5 native shrubs species; native volunteer species will be included in the count. This Performance Standard will be achieved by the end of Year 5 as well, to satisfy mitigation requirements for the City of Kent. To be considered, the native species must make up at least 5 percent of the vegetation class.

Performance Standard 2.1.2 – State-listed, Class A noxious weeds must be completely eliminated from the wetland areas in all monitoring years and invasive species that are not considered state-listed, Class-A noxious weeds shall not exceed 20 percent aerial cover in the wetland areas in all monitoring years.

Performance Standard 2.1.3 - Minimum plant survivorship within the wetland rehabilitation areas will be at 100 percent of installed trees and shrubs at the end of Year 1 (utilization of native recruits and replacement of lost plants allowed), 85 percent at the end of Year 2, and 80 percent at the end of year 3.

Performance Standard 2.1.4 – Minimum native woody species total areal cover within the wetland rehabilitation areas will be at 20 percent total cover at the end of Year 2, 25 percent at the end of Year 3, 30 percent at the end of Year 4, 40 percent at the end of Year 5, 60 percent at the end of Year 7, and 65 percent at the end of Year 10.

Goal 3 – Improve and protect wetland and buffer functions by restoring the remaining buffer areas associated with Wetland A and Stream Z.

Objective 3.1 – Restore a total of 104,992 square feet of buffer area with a suite of native trees, shrubs, and emergent plants to create diverse horizontal and vertical vegetation structure and additional wildlife habitat.

Performance Standard 3.1.1 – By the end of Year 10, the enhancement areas will have at least 3 species of native trees and 5 species of native shrubs; native volunteer species will be included in the count. To be considered, the native species must make up at least 5 percent of the vegetation class.

Performance Standard 3.1.2 – Minimum plant survivorship will be at 100 percent of installed plants at the end of Year 1 (replacement of lost plants allowed), 85 percent at the end of Year 2, and 75 percent at the end of Year 3.

Performance Standard 3.1.3 – State-listed, Class A noxious weeds must be completely eliminated from the buffer areas in all monitoring years and invasive species that are not considered state-listed, Class-A noxious weeds shall not exceed 20 percent aerial cover in the buffer areas in all monitoring years.

Performance Standard 3.1.4 – Minimum native woody species total areal cover within the buffer restoration areas will be 20 percent total cover at the end of Year 2, 25 percent at the end of Year 3, 30 percent at the end of Year 4, 40 percent at the end of Year 5, 60 percent at the end of Year 7, and 65 percent at the end of Year 10.

Goal 4 – Compensate for the direct impacts to Stream Z channel by creating a meandering stream channel.

Objective 3.1 – Create a new stream reach and enhanced habitat components.

Performance Standard 4.1.1 – The new stream channel system will be created according to the final approved design and documented in the As-Built Report.

Performance Standard 4.1.2 – Habitat structures with large woody debris in the new stream channel system will be created according to the final approved design and documented in the As-Built Report

2.6 Plant Materials and Installation

2.6.1 Plant Materials

All plant materials to be used for mitigation actions will be nursery grown stock from a reputable, local source. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material

provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

Container stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit rootbound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops. Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is specified in the plan set.

All plant material shall be inspected by the Project Scientist upon delivery. Plant material not conforming to the specifications below will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site.

Fertilizer will be in the form of Agroform plant tabs or an approved like form. Mulch will consist of sterile wheat straw for seeded areas (if necessary) and clean recycled wood chips approximately ½-inch to 1-inch in size and ½-inch thick for woody plants. The mulch material may be sourced from non-invasive woody materials sourced from the land clearing activities.

2.6.2 Plant Scheduling, Species, Size, and Spacing

Plant installation should occur as close to conclusion of the construction activities as possible to limit erosion and limit the temporal loss of function provided by the wetlands and buffers. All planting should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary.

2.6.3 Quality Control for Planting Plan

All plant material shall be inspected by the qualified Project Scientist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site. Under no circumstances shall container stock be handled by their trunks, stems, or tops.

The landscape contractor shall provide the responsible Project Scientist with documentation of plant material that includes the supplying nursery contact information, plant species, plant quantities, and plant sizes.

2.6.4 Product Handling, Delivery, and Storage

All seed and fertilizer should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable to the responsible Project Scientist. Plants, fertilizer, and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

2.6.5 Preparation and Installation of Plant Materials

The planting contractor shall verify the location of all elements of the mitigation plan with the responsible Project Scientist prior to installation. The responsible Project Scientist reserves the right to adjust the locations of landscape elements during the installation period as appropriate. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Scientist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 1.5 times the width of the rootball, and the depth of the pit should accommodate the entire root system.

Broken roots should be pruned with a sharp instrument and rootballs should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agroform tablets. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water and install a 4- to 6-inch layer of mulch around the base of each container plant, using care not to cover the base/stem of the plant itself.

2.6.6 Temporary Irrigation Specifications

While the native species selected for mitigation actions are hardy and typically thrive in northwest conditions and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering may be provided as necessary for the duration of the first two growing seasons, two times per week while the native plantings become established. If used, irrigation will be discontinued after two growing seasons. Frequency and amount of irrigation will be dependent upon climatic conditions and may require more or less frequent watering than two times per week.

2.6.7 Invasive Plant Control and Removal

Invasive species to be removed include Himalayan blackberry and reed canarygrass and all listed noxious weeds that may potentially be present within the mitigation areas; such non-native invasive species will require an effective control strategy. To ensure non-native invasive species do not expand following the mitigation actions, non-native invasive plants within the entire mitigation area will be pretreated with a root-killing herbicide approved for use in aquatic sites (i.e. Rodeo) a minimum of two weeks prior to being cleared and grubbed from the mitigation area. A second application is strongly recommended. The pre-treatment with herbicide should occur prior to all planned mitigation actions, and spot treatment of surviving non-native invasive vegetation should be performed again each fall prior to senescence for a minimum of three years.

2.7 Maintenance & Monitoring Plan

The maintenance and monitoring plans is described below in accordance with KCC 11.06.570. The Applicant is committed to compliance with the mitigation plan and overall success of the project. As such, the Applicant will continue to maintain the mitigation areas, keeping the site free from of non-native invasive vegetation, trash, and yard waste.

The wetland mitigation actions will require continued monitoring and maintenance to ensure the mitigation actions are successful. Therefore, the mitigation areas will be monitored for a period of 10

years, with formal inspections by a qualified Project Scientist. Monitoring events will be scheduled at the time of construction, 30 days after planting, and minimally on an annual basis during Years 1, 2, 3, 4, 5, 7, and 10. Closeout monitoring will occur in Year 5 for the City and Year 10 for the USACE to ensure the success of the mitigation actions.

Monitoring will consist of percent cover measurements at permanent monitoring stations, walk-through surveys to identify invasive species presence and dead or dying mitigation plantings, photographs taken at fixed photo points, wildlife observations, and general qualitative habitat and wetland function observations.

To determine percent cover, observed vegetation will be identified and recorded by species and an estimate of areal cover of dominant species within each sampling plots. Circular sample plots, approximately 30 feet in diameter (706 square feet), are centered at each monitoring station. The sample plots encompass the specified wetland areas and terminate at the observed wetland or buffer boundary. Trees and shrubs within each 30-foot diameter monitoring plot are then recorded to species and areal cover. Herbaceous vegetation is sampled from a 10-foot diameter (78.5 square feet) within each monitoring plot, established at the same location as the center of each tree and shrub sample plot. Herbaceous vegetation within each monitoring plot is then recorded to species and includes an estimate of percent areal cover. A list of observed tree, shrub, and herbaceous species including percent areal cover of each species and wetland status is included within the monitoring report.

2.8 Reporting

Following construction of the mitigation areas, an as-built inspection and report will be completed and submitted to the City of Kent and the USACE. Following each monitoring event, a brief monitoring report detailing the current ecological status of the mitigation actions, measurement of performance standards, and management recommendations will be prepared and submitted to the City of Kent and the USACE within 90 days of each monitoring event to ensure full compliance with the mitigation plan.

2.9 Contingency Plan

If monitoring results indicate that performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance is essential in ensuring that problems do not arise. Should any portions of the mitigation areas fail to meet the success criteria, a contingency plan will be developed and implemented with City and USACE approval. Such plans are adaptive and should be prepared on a case-by-case basis to reflect the failed mitigation characteristics. Contingency plans can include additional plant installation, erosion control, and plant substitutions including type, size, and location. The Contingency measures outlined below can also be utilized in perpetuity to maintain the wetlands and buffers associated with the proposed project site.

Contingency/maintenance activities may include, but are not limited to:

1. Using plugs instead of seed for emergent vegetation coverage where seeded material does not become well-established;
2. Replacing plants lost to vandalism, drought, or disease, as necessary;

3. Replacing any plant species with a 20 percent or greater mortality rate after two growing seasons with the same species or native species of similar form and function;
4. Irrigating the mitigation areas only as necessary during dry weather if plants appear to be too dry, with a minimal quantity of water;
5. Reseeding and/or repair of wetland areas as necessary if erosion or sedimentation occurs;
6. Spot treat non-native invasive plant species; and
7. Removing all trash or undesirable debris from the wetland and buffer areas as necessary.

2.10 Long-Term Management Plan

Informal, post-compliance maintenance and monitoring of the compensatory wetland mitigation area will continue permanently in compliance with 33 CFR 332.7(d)(2). This project proposes 10 years of monitoring (5 years for the City) in compliance with the goals and performance standards outlined in Section 2.5 of the report. To ensure long-term success of the mitigation site, the landowner will also be responsible for implementing the maintenance items outlined in Section 2.7 of the report. 1) Maintenance actions may include, but are not limited to, treatment of invasive plant species and removal of trash and undesirable debris from the wetland and buffer areas. Please see the contingency/maintenance activities list for additional details. 2) Annual cost estimates for these actions: Mitigation area maintenance is anticipated to cost up to $2,000 annually and primarily will be used for potential invasive plant species treatment and any potential reoccurring debris removal. By Year 10, with the support of the contingency plan (if necessary), the plants will be well established; therefore, no budget will be necessary for watering and/or plant replacement. 3) How the long-term management will be funded: Revenue generated from the proposed development and/or tenant lease rate will be utilized for funding long-term management. 4) Frequency of monitoring, maintenance and reporting. In compliance with 33 CFR 332.7(d)(2), the mitigation areas on the project site will be maintained in perpetuity by the landowner. No additional formal wetland monitoring and reporting by a professional biologist beyond the Year 10 As-Built is proposed at this time; however, the USACE may request informal monitoring and reporting of the general condition and maintenance actions performed regarding upkeep of the mitigation site in perpetuity. In compliance with 33 CFR 332.7(d)(2) and to ensure long-term success of the mitigation site, the landowner will be responsible for implementing long-term maintenance. In addition, the mitigation areas on the project site will be maintained in perpetuity by the landowner. A notice on title will be added to the property to ensure recognition of the wetland mitigation areas into the future.

2.11 Contingency Plan

Long-term protection of the mitigation site shall be provided by placement in a separate tract in which development is prohibited or by execution of an easement dedicated to the City of Kent, a conservation organization, land trust, or similarly preserved through a permanent protective mechanism acceptable to the city. The location and limitations associated with the mitigation area shall be shown on the face of the deed or plat applicable to the property and shall be recorded with the King County recording department.

2.12 Financial Assurances

Under KCC 11.06.570.B, performance security is required to assure that all actions approved under this Mitigation Plan are satisfactorily completed in accordance with the mitigation plan, performance standards, and regulatory conditions of approval. Prior to final inspection, a maintenance and warranty security (bond) shall be obtained in an amount equal to 125 percent of the total fair market cost of construction/installation labor and materials. A bond quantity worksheet will be completed during the Final Mitigation Plan.

Chapter 3. References

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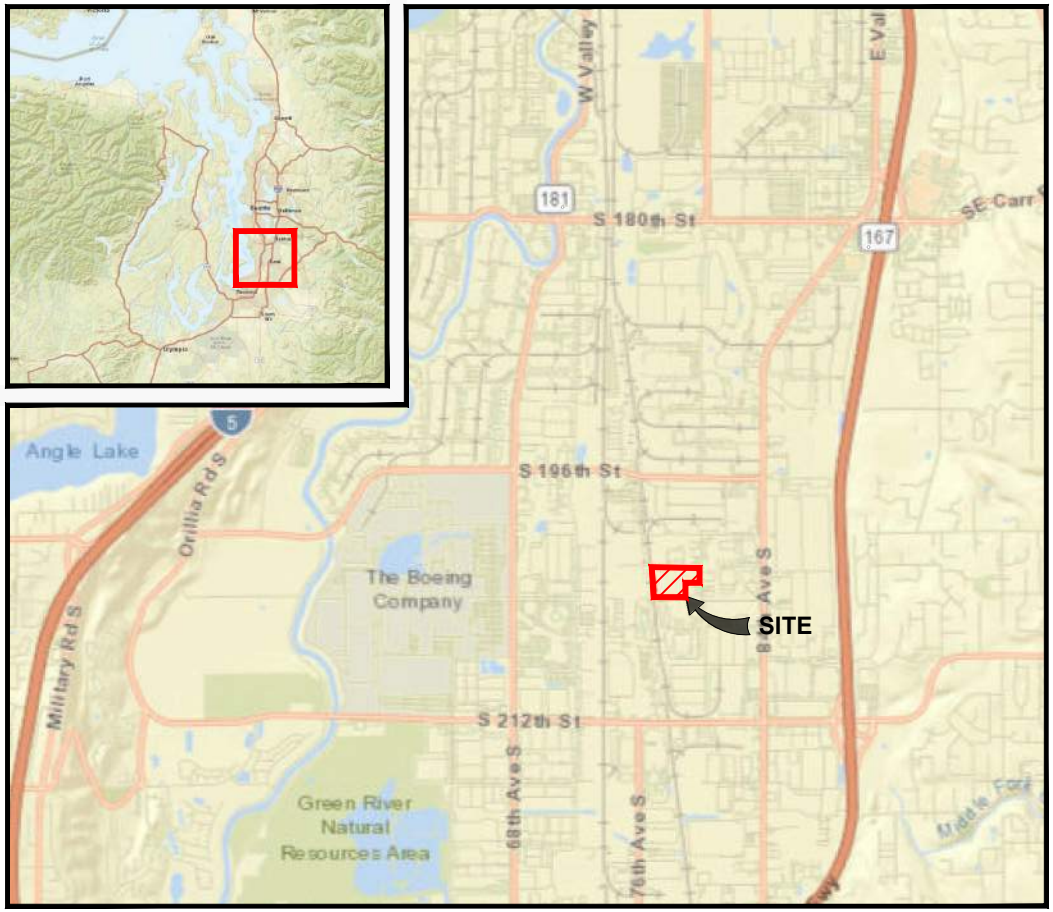
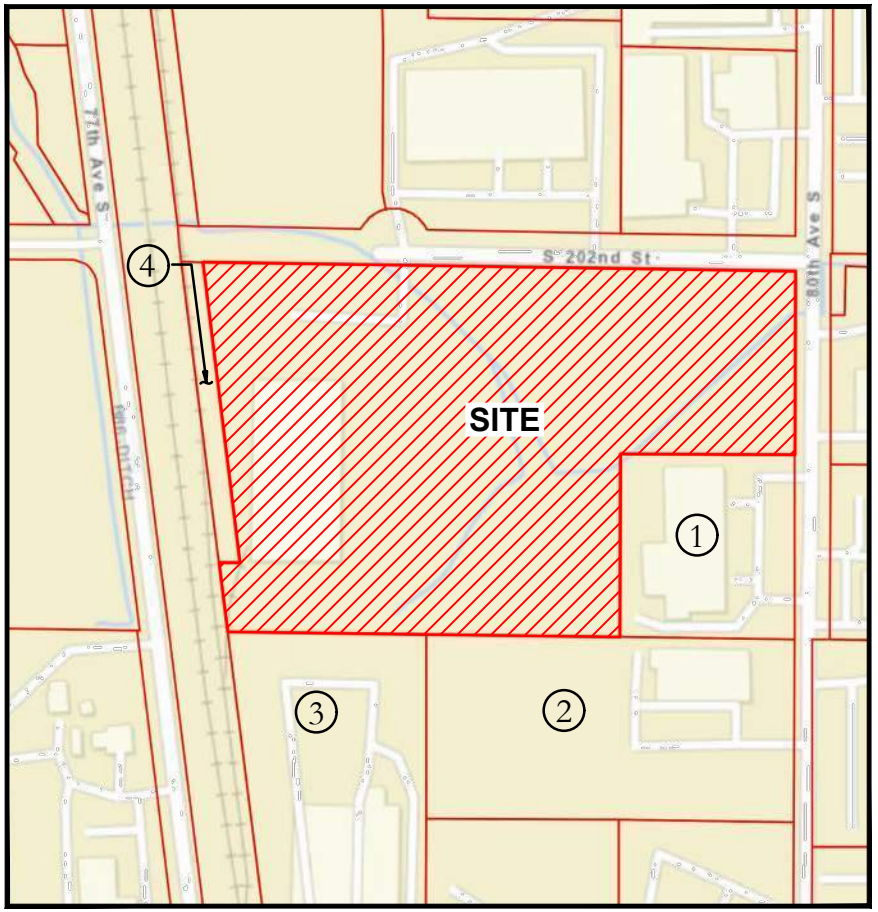
Appendix A — Existing Conditions and Proposed Exhibits

MARALCO - VICINITY



VICINITY MAP

SOURCE: ESRI, OSM, USGS



ADJACENT OWNERSHIP

SOURCE: ESRI

1. KYC LLC
2. WALMAN OPTICAL COMPANY
3. KNIGHT TRANSPORTATION INC
4. BNSF

7730 202ND STREE KENT, WA 98032	REFERENCE # ---- APPLICANT: BRIDGE DEVELOPMENT PARTNERS, LLC
THE SE ¼ OF SECTION 01, TOWNSHIP 22N, RANGE 04E, W.M.	PROPOSED PROJECT: PROPOSED INDUSTRIAL REDEVELOPMENT
KING COUNTY PARCEL NUMBER(S): 6315000300	IN: KENT / NEAR: ----
LAT: 47°25'12.74" N LON: -122°14'7.87" W	

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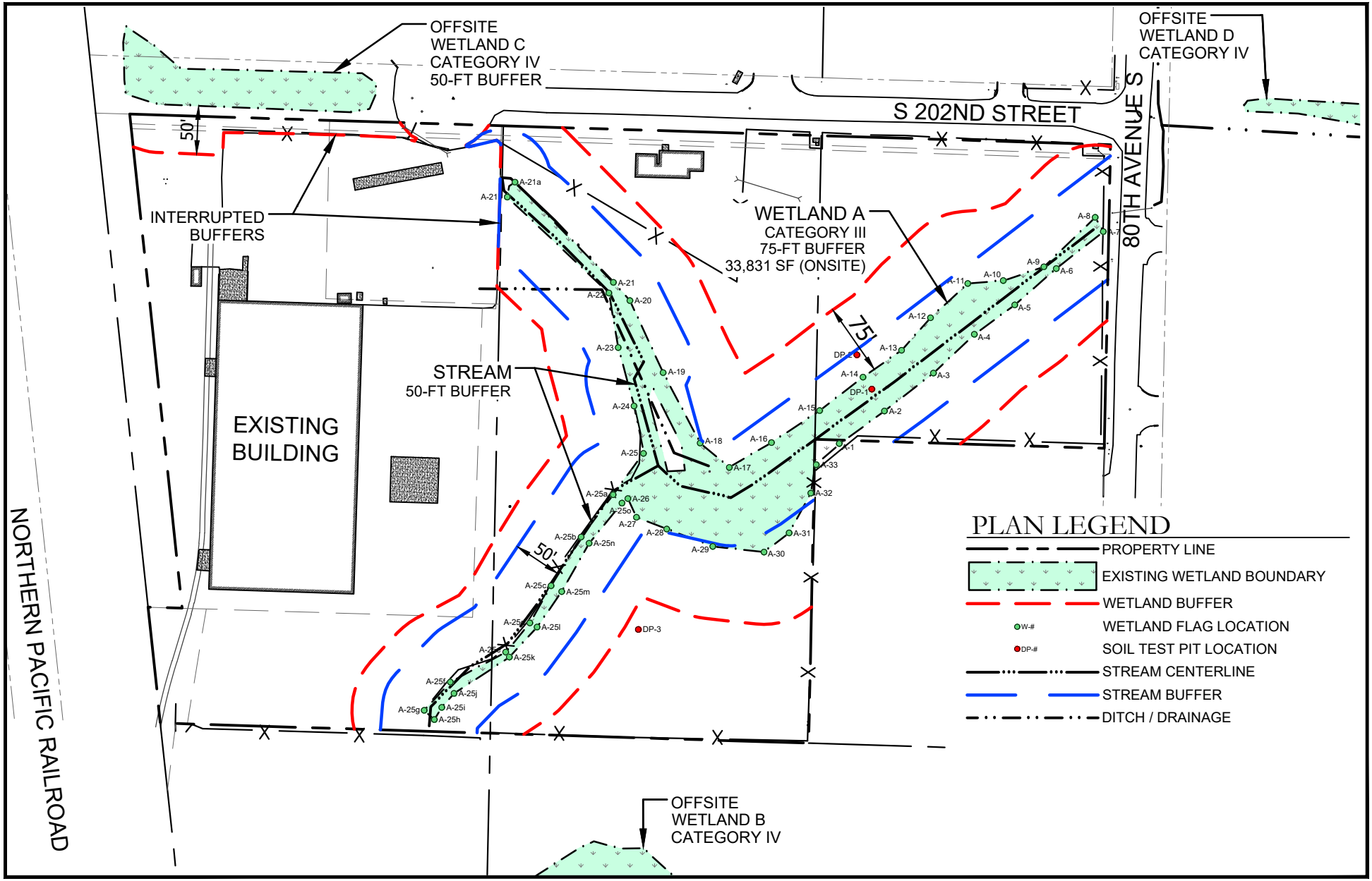
WWW.SOUNDVIEWCONSULTANTS.COM

DATE:	03/28/2022
JOB:	1582.00022
BY:	MW
SCALE:	AS SHOWN
SHEET:	1

S:\CURRENT\1582 Bridge Development\1582.0022 Maralco\Graphics & Maps\CAD\A - CURRENT SVC DRAWINGS\A - Current Base DWGs\1582.0022 (2022-03-24) base.dwg
Plotted March 28, 2022

MARALCO - EXISTING CONDITIONS



0 70 140 280

GRAPHIC SCALE
1"= 140'

MARALCO
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KENT, WA 98032

KING COUNTY
PARCEL NUMBER(S):
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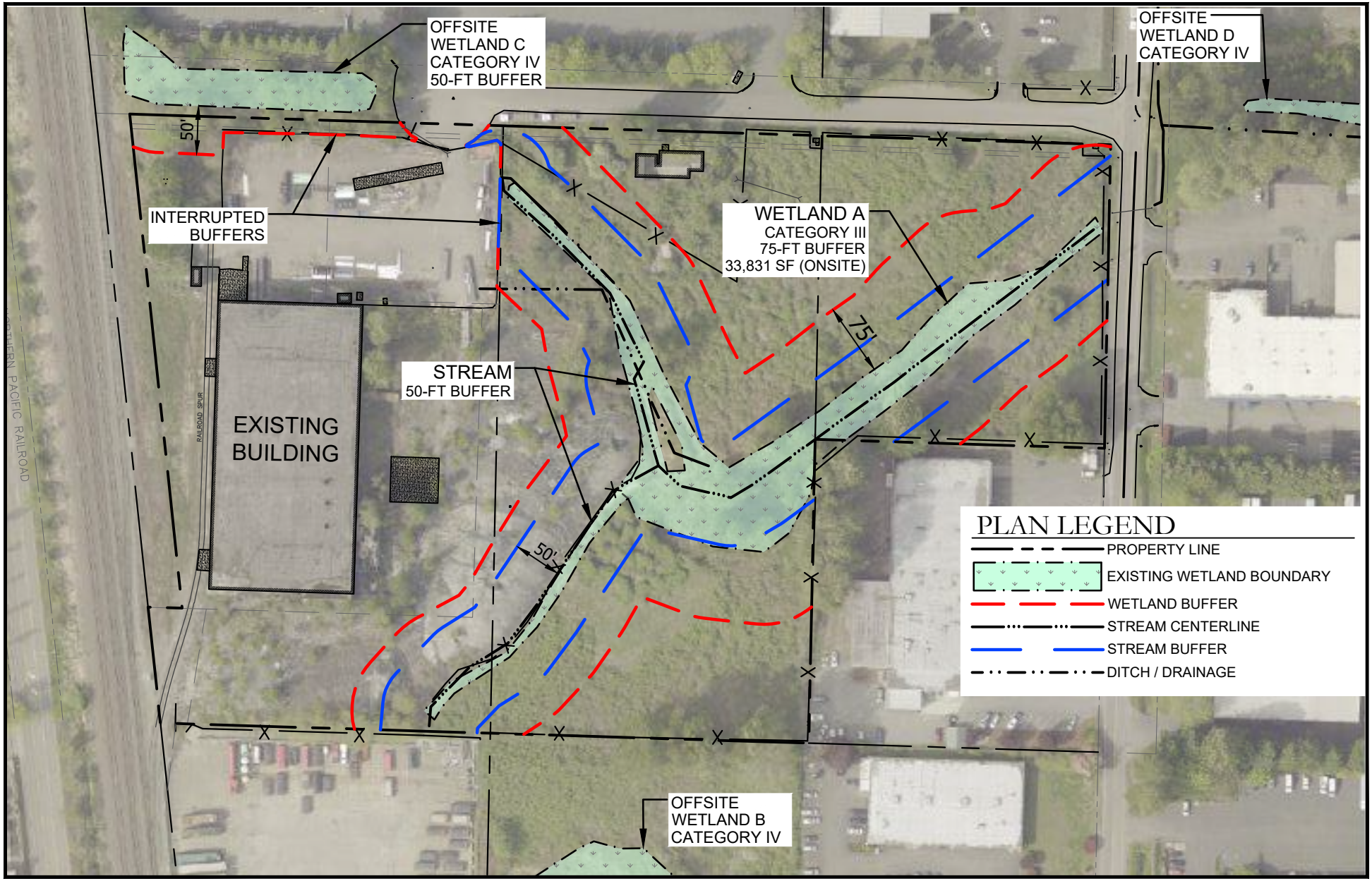
DATE: 3/25/2022
JOB: 1582.0022
BY: MW
SCALE: AS SHOWN
SHEET: 2

C:\Users\Matt\Desktop\1582.0022 (2022-03-24) base.dwg
Plotted March 28, 2022

MARALCO - EXISTING CONDITIONS (AERIAL IMAGERY)



0 70 140 280

GRAPHIC SCALE
1"= 140'

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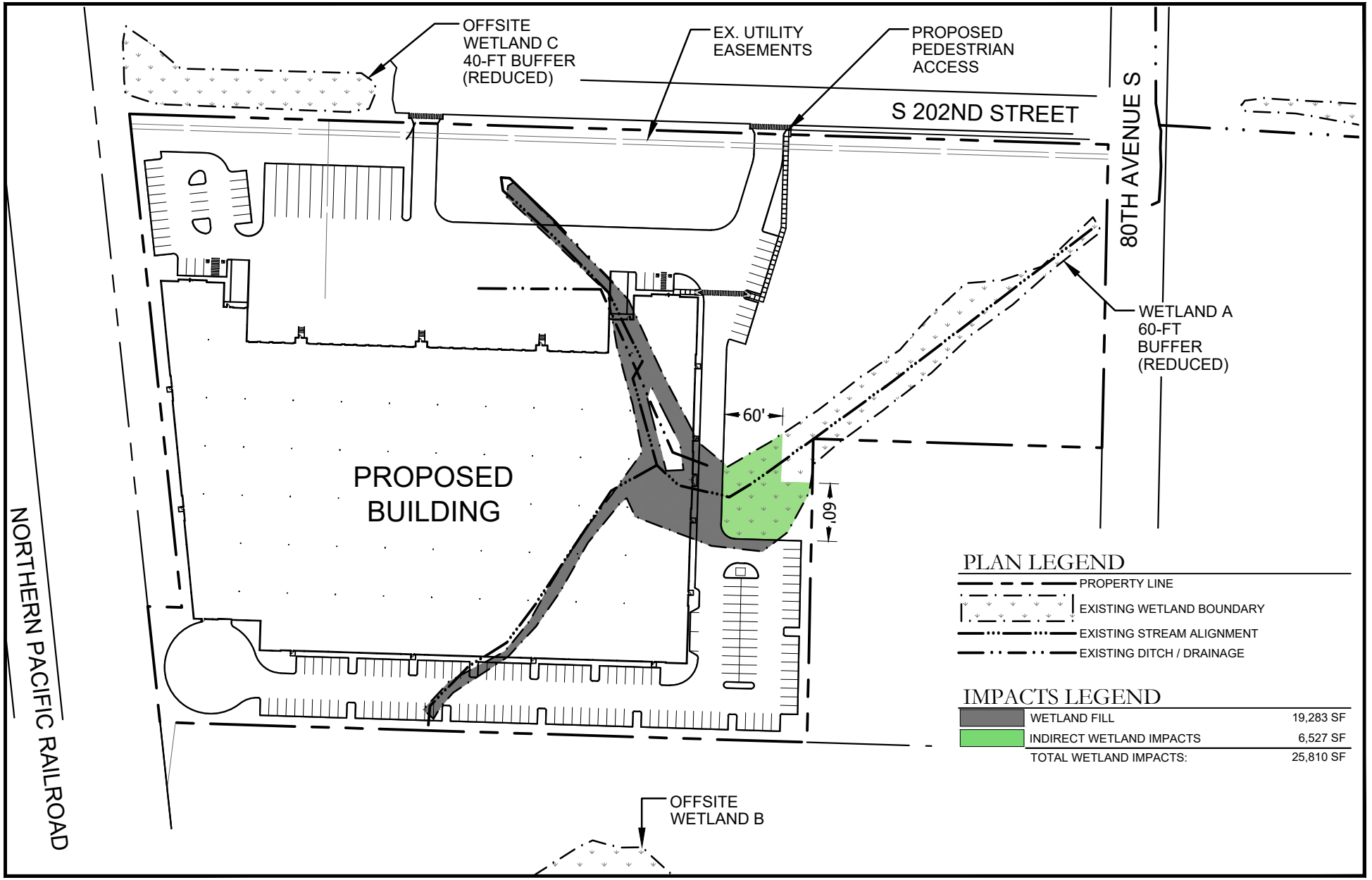
SHEET: 3

S:\CURRENT\1582 Bridge Development\1582.0022 Maralco\Graphics & Maps\CAD\A - CURRENT SVC DRAWINGS\A - Current Base DWGs\1582.0022 (2022-03-24) base.dwg
Plotted March 28, 2022

MARALCO - PROPOSED SITE PLAN



0 70 140 280

GRAPHIC SCALE
1"= 140'

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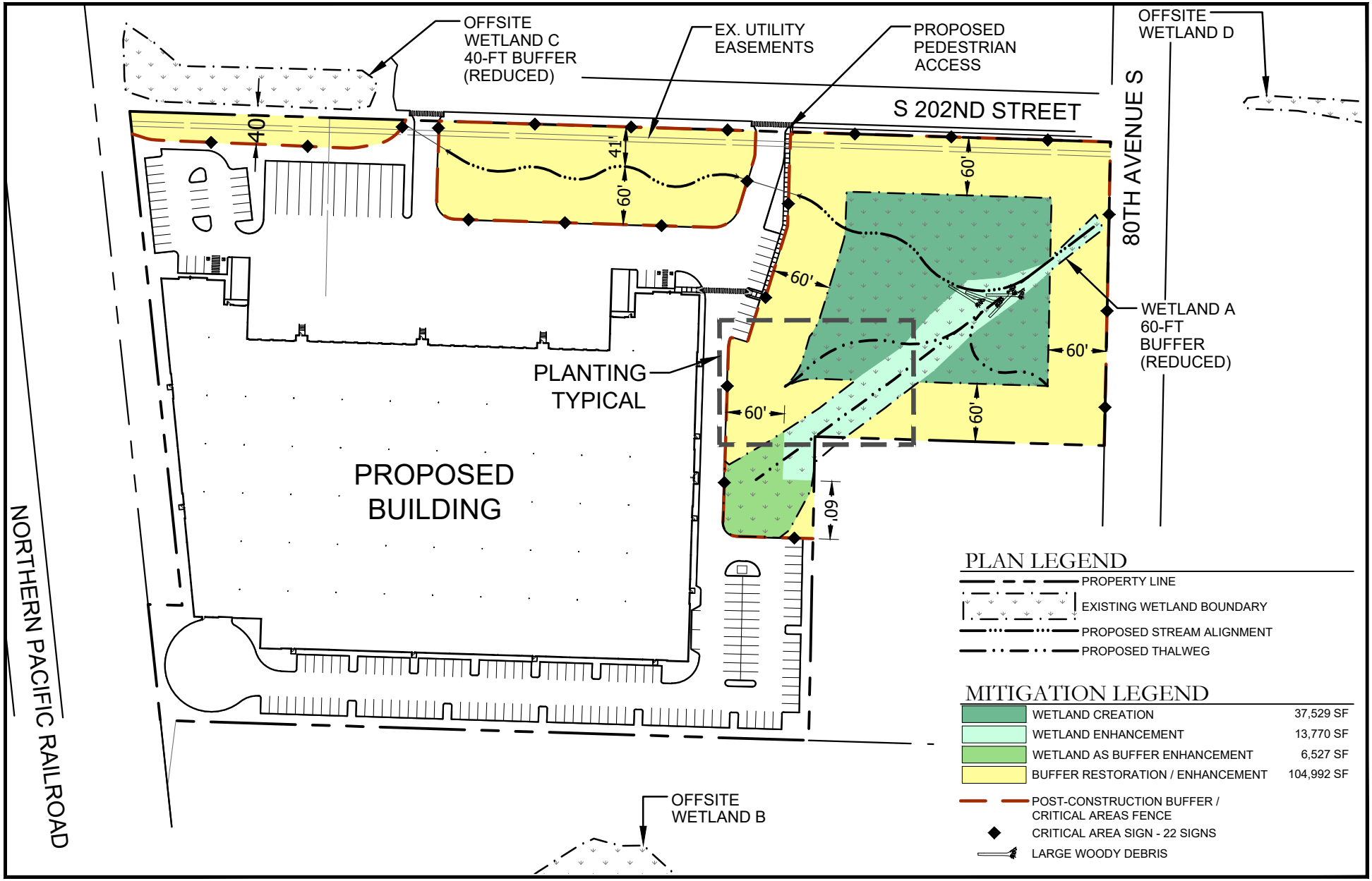
DATE: 3/25/2022
JOB: 1582.0022
BY: MW
SCALE: AS SHOWN
SHEET: 4

MARALCO - MITIGATION PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- PROPOSED STREAM ALIGNMENT
- PROPOSED THALWEG

MITIGATION LEGEND

WETLAND CREATION	37,529 SF
WETLAND ENHANCEMENT	13,770 SF
WETLAND AS BUFFER ENHANCEMENT	6,527 SF
BUFFER RESTORATION / ENHANCEMENT	104,992 SF

- POST-CONSTRUCTION BUFFER / CRITICAL AREAS FENCE
- CRITICAL AREA SIGN - 22 SIGNS
- LARGE WOODY DEBRIS

0 70 140 280

GRAPHIC SCALE
1"= 140'

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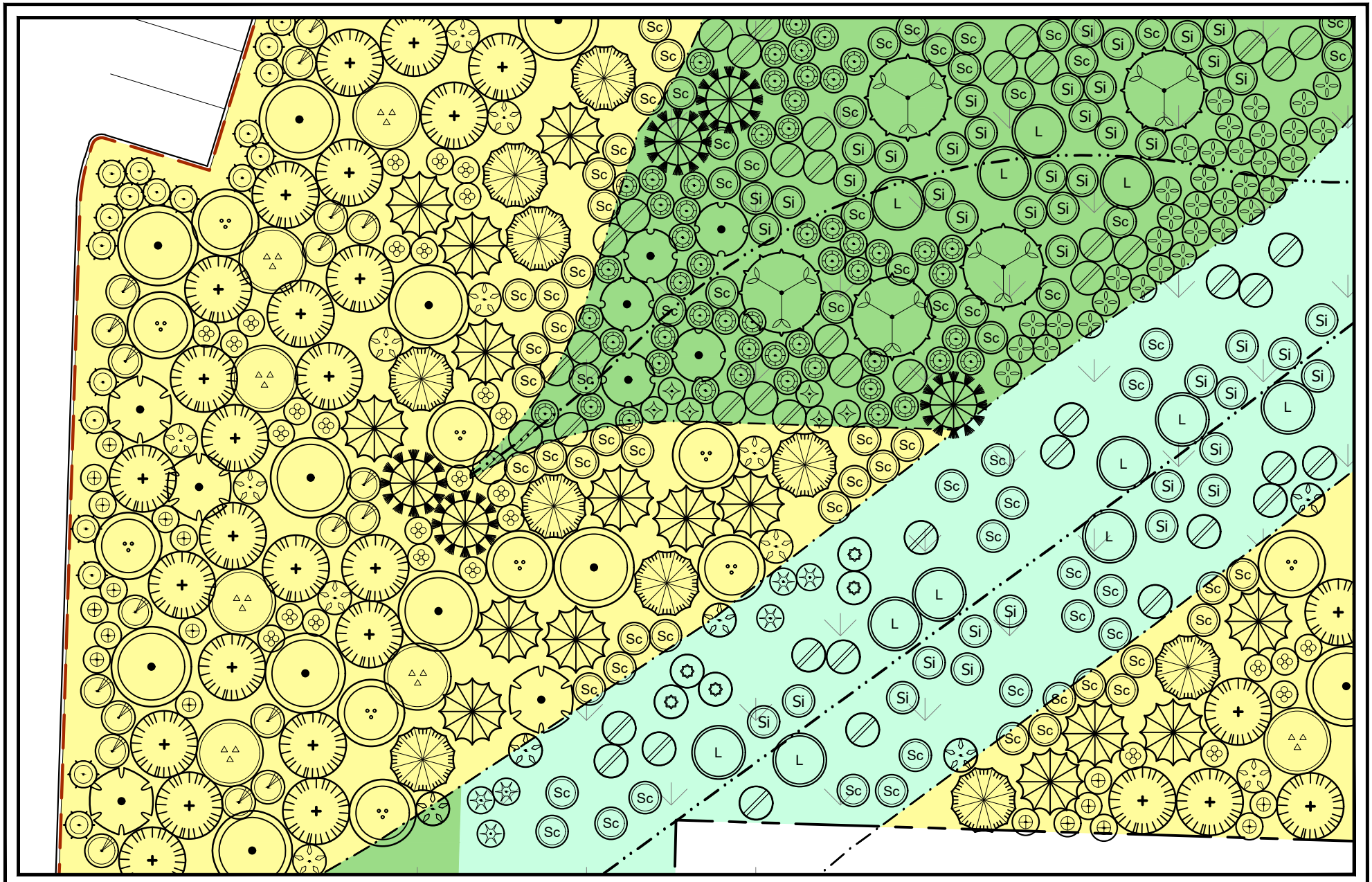
SHEET: 5

MARALCO - PLANTING TYPICAL



0 10 20 40

GRAPHIC SCALE
1"= 20'

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BY:	MW
SCALE:	AS SHOWN
SHEET:	6

MARALCO - PLANT SCHEDULE 1

		Area (sf):	37,529	20,297	104,992	162,818				
		Cov'g (%):	100	50	100					
		Trees (%):	25	25	50					
		Shrubs (%):	75	75	50					
Scientific Name	Common Name	WL Status	Wetland Creation	Wetland Enhancement	Buffer Restoration/ Enhancement	TOTAL	Spacing (min.)	Height (min.)	Size (min.)	Planting Area
TREES										
Acer macrophyllum	bigleaf maple	FACU	-	-	90	90	10 ft	3 ft	2 gal	Dry
Frangula purshiana (Rhamnus p.)	cascara	FAC	-	-	36	36	10 ft	3 ft	1 gal	Dry
Fraxinus latifolia	Oregon ash	FACW	32	-	-	32	12 ft	3 ft	2 gal	Wet - in wetland
Malus fusca (Pyrus f.)	Pacific crabapple	FACW	32	-	-	32	10 ft	3 ft	2 gal	Wet - in wetland
Pinus contorta var. contorta	shore pine	FAC	20	-	20	40	10 ft	3 ft	1 gal	Dry/Moist
Pseudotsuga menziesii	Douglas fir	FACU	-	-	250	250	10 ft	3 ft	2 gal	Dry
Salix lasiandra	Pacific willow	FACW	24	30	-	54	10 ft	4 ft	Stakes	Wet
Thuja plicata	western redcedar	FAC	-	-	125	125	10 ft	3 ft	2 gal	Moist
Tsuga heterophylla	western hemlock	FACU	-	-	85	85	10 ft	3 ft	2 gal	Moist
		Total:	108	30	606	744				
SHRUBS										
Acer circinatum	vine maple	FAC	-	-	90	90	10 ft	4 ft	2 gal	Dry/Moist
Cornus stolonifera	red-osier dogwood	FACW	182	60	-	242	4 ft	3 ft	1 gal	Moist/Wet
Corylus cornuta var. californica	western hazlenut	FACU	-	-	60	60	10 ft	2 ft	2 gal	Moist
NO SYMBOL *Gaultheria shallon*	salal	FACU	-	53	500	553	4 - 5 ft	1 ft	1 gal	Dry, on hummock in wetland
Holodiscus discolor	oceanspray	FACU	-	-	150	150	5 ft	2 ft	1 gal	Dry
Physocarpus capitatus	Pacific ninebark	FACW	-	18	-	18	5 ft	2 ft	1 gal	Moist/Wet
NO SYMBOL *Polystichum munitum*	western swordfern	FACU	-	-	500	500	4 - 5 ft	1 ft	1 gal	Dry/Moist
Ribes lacustre	swamp gooseberry	FAC	38	-	-	38	4 ft	2 ft	1 gal	Moist/Wet
Rosa gymnocarpa	bald hip rose	FACU	-	-	150	150	4 ft	2 ft	1 gal	Dry/Moist
Rosa pisocarpa	clustered wild rose	FAC	-	23	-	23	4 ft	2 ft	1 gal	Wet
Rubus parviflorus	thimbleberry	FACU	-	-	150	150	4 ft	2 ft	1 gal	Moist
Rubus spectabilis var. spectabilis	salmonberry	FAC	358	60	175	593	4 ft	2 ft	1 gal	Moist
Sc *Salix scouleriana*	Scouler's willow	FAC	182	60	300	542	5 ft	4 ft	Stakes	Dry
Si *Salix sitchensis*	Sitka willow	FACW	182	60	-	242	10 ft	4 ft	Stakes	Moist/Wet
Sambucus racemosa var. racemosa	red elderberry	FACU	-	18	100	118	5 ft	2 ft	2 gal	Dry
Spiraea douglasii	Douglas spirea	FACW	358	-	-	358	4 ft	2 ft	1 gal	Moist/Wet
Symphoricarpos albus var. laevigatus	common snowberry	FACU	-	-	250	250	4 ft	2 ft	1 gal	Dry
		Total:	1300	352	2425	4077				

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MARALCO - PLANT SCHEDULE 2

SEED MIXES (www.riverrefugeseed.com)		WL Status	Wetland Creation	Wetland Enhancement	Buffer Restoration/ Enhancement	TOTAL
Native Upland Grass Mix #9	**20 lbs/acre**					
Elymus glaucus	Blue wildrye	30%				
Bromus carinatus	California brome	25%				
Hordeum brachyantherum	Meadow barley	10%				
Festuca roemeri	Roemer's fescue	10%				
Deschampsia elongata	Slender hairgrass	10%				
Agrostis exarata	Spike bentgrass	5%				
Deschampsia cespitosa	Tufted hairgrass	5%				
Festuca rubra var. rubra	Red fescue	5%				
		Total (lbs):	-	-	49	49
Moist Soil Sedge & Rush Mix #11	**20 lbs/acre**					
Carex unilateralis	One-sided sedge	70%				
Carex densa	Dense sedge	12%				
Juncus effusus	Common rush	5%				
Juncus tenuis	Slender rush	5%				
Juncus bufonius	Toad rush	5%				
Carex stipata	Awl fruited sedge	2%				
Carex obnupta	Slough sedge	1%				
		Total (lbs):	5	-	-	5
Native Moist Soil Mgmt Mix #12	**20 lbs/acre**					
Glyceria occidentalis	Western mannagrass	35%				
Alisma subcordatum	American water plantain	15%				
Polygonum pensylvanicum	Pennsylvania smartweed	15%				
Beckmannia syzigachne	American sloughgrass	10%				
Alopecurus aequalis	Shortawn foxtail	5%				
Eleocharis palustris	Creeping spikerush	5%				
Hordeum brachyantherum	Meadow barley	5%				
Eleocharis ovata	Ovate spikerush	4%				
Leersia oryzoides	Rice cutgrass	3%				
Scirpus tabernaemontani	Softstem bulrush	3%				
		Total (lbs):	13	10	-	23
Habitat Structures						
Large Woody Debris	**5 ea.**	**18-20 feet long, 10 inch minimum diameter**				

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest, 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018).*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Tree calculations based upon 10-ft average spacing.
6 - Shrub calculations based upon 5-ft average spacing.
7 - *Gaultheria shallon, Mahonia nervosa, & Polystichum munitum* to be planted in groups of no less than around the bases of trees.

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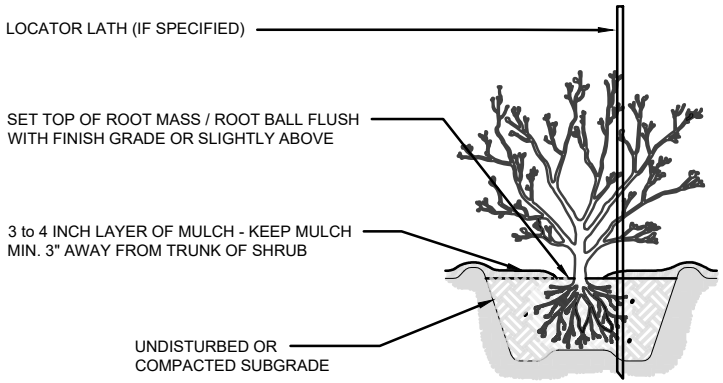
SHEET: 8

TREE AND SHRUB PLANTING DETAIL (TYPICAL)

NOT TO SCALE



NOTES:

1. PLANT SHRUBS OF THE SAME SPECIES IN GROUPS OF 3 to 9 AS APPROPRIATE, OR AS SHOWN ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES TO ACHIEVE A NATURAL-LOOKING LAYOUT.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

LIVE STAKE PLANTING DETAIL

NOT TO SCALE

NOTES:

1. LIVE STAKES TO BE 1 TO 2 INCH DIAMETER 24 TO 32 INCHES LENGTH.
2. USE 1/2 INCH DIAMETER REBAR OR ROCK BAR TO MAKE PILOT HOLE.
3. INSTALL LIVE STAKES TAPER END DOWN WITH BUDS POINTED UP.
4. MINUMUM TWO BUDS ABOVE GRADE.
5. SET LIVE STAKES WITH DEAD-BLOW HAMMER.
6. WATER IMMEDIATELY AFTER INSTALLATION.

STORAGE OF LIVE STAKES

ALL WOODY PLANT CUTTINGS COLLECTED MORE THAN 12 HR PRIOR TO INSTALLATION, MUST BE CAREFULLY BOUND, SECURED, AND STORED OUT OF DIRECT SUNLIGHT AND SUBMERGED IN CLEAN FRESH WATER FOR A PERIOD OF UP TO TWO WEEKS.

OUTDOOR TEMPERATURES MUST BE LESS THAN 50 DEGREES F AND TEMPERATURE INDOORS AND IN STORAGE CONTAINERS MUST BE BETWEEN 34 AND 50 DEGREES F.

IF THE LIVE STAKES CANNOT BE INSTALLED DURING THE DORMANT SEASON, CUT DURING THE DORMANT SEASON AND HOLD IN COLD STORAGE AT TEMPERATURES BETWEEN 33 AND 39 DEGREES F FOR UP TO 2 MONTHS.

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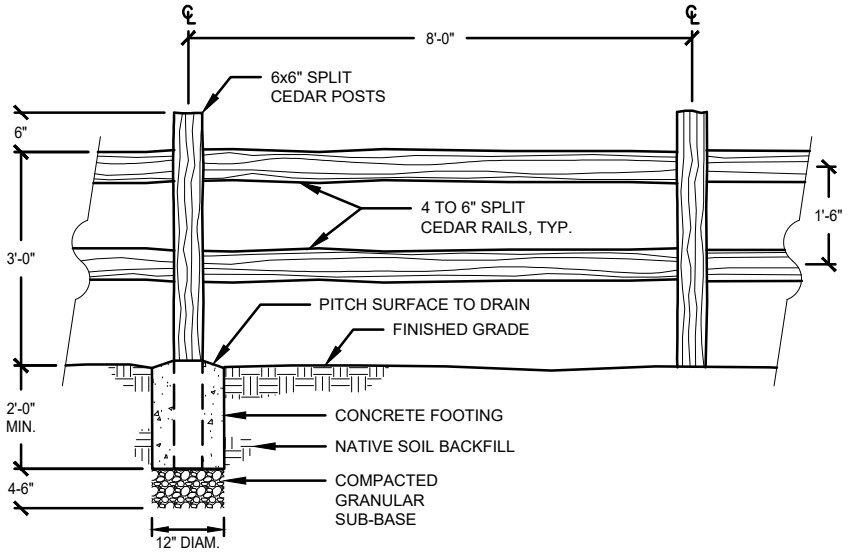
SHEET: 9

SPLIT RAIL FENCE DETAIL

NOT TO SCALE

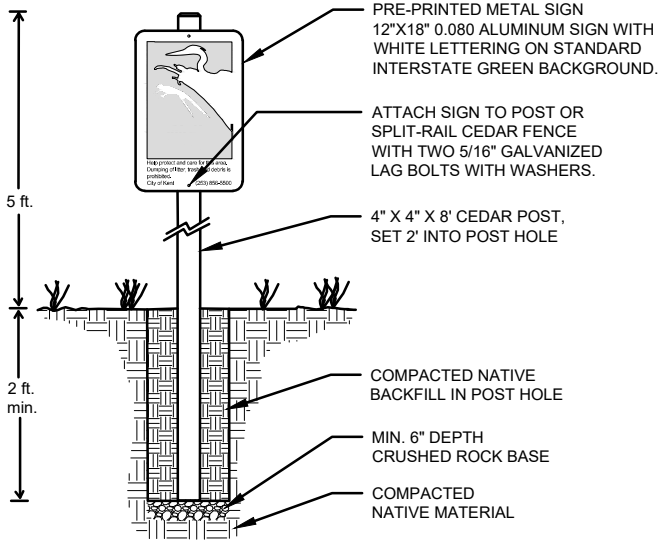


NOTES:

1. POSTS AND RAILINGS PRE-CUT FOR ASSEMBLY.
2. 3-RAIL DESIGNS ARE PERMITTED.
3. FENCE SHALL BE PLACED AT APPROVED BUFFER EDGE.

CRITICAL AREA SIGN DETAIL

NOT TO SCALE



CRITICAL AREA BOUNDARY SIGN NOTES:

1. THE WETLAND/STREAM SIGN SHALL BE POSTED AT THE BOUNDARY BETWEEN THE LOT AND THE CRITICAL AREA.
2. ONE SIGN SHALL BE POSTED PER RESIDENTIAL LOT AND ONE SIGN PER 100 FEET FOR ALL PUBLIC RIGHTS-OF-WAY, TRAILS, PARKING AREAS, PLAYGROUNDS, AND ALL OTHER USES LOCATED ADJACENT TO WETLANDS AND ASSOCIATED BUFFERS.
3. PRE-PRINTED METAL SIGN AVAILABLE THROUGH SIGN, AVAILABLE THROUGH:
   ZUMAR INDUSTRIES
   PHONE: 1-800-426-7967,
   WEBSITE: WWW.ZUMAR.COM

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BY: MW
SCALE: AS SHOWN
SHEET: 10

Appendix B — Qualifications

All determinations and supporting documentation, including this ***Conceptual Mitigation Plan*** prepared for the ***Maralco*** project were prepared by, or under the direction of Jon Pickett of SVC. In addition, report preparation was completed by Morgan Kentch, and general project oversight and final quality assurance/quality control was completed by Kyla Caddey.

Jon Pickett

Associate Principal
Professional Experience: 10+ years

Jon Pickett is an Associate Principal and Senior Scientist with a diverse background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. Jon oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. Jon performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

Jon earned a Bachelor of Science degree in Natural Resource Sciences from Washington State University and Bachelor of Science and Minor in Forestry from Washington State University. Jon has received 40-hour wetland delineation training (Western Mountains, Valleys, & Coast and Arid West Regional Supplements) and regularly performs wetland, stream, and shoreline delineations. Jon is a Whatcom County Qualified Wetland Specialist and Wildlife Biologist and is a Pierce County Qualified Wetland Specialist. He has been formally trained by WSDOE in the use of the Washington State Wetland Rating System 2014, How to Determine the Ordinary High-Water Mark (Freshwater and Marine), Using Field Indicators for Hydric Soils, and the Using the Credit-Debit Method for Estimating Mitigation Needs.

Kyla Caddey, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 7 years

Kyla Caddey is a Senior Environmental Scientist with a diverse background in stream and wetland ecology, wildlife ecology and conservation, wildlife and natural resource assessments and monitoring, and riparian habitat restoration at various public and private entities. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems which included various environmental science research and statistical analysis. Kyla has advanced expertise in federal- and state-listed endangered, threatened, and sensitive species surveys and assessment of aquatic and terrestrial systems throughout the Puget Sound region. She has completed hundreds of wetland delineations and has extensive knowledge and interest in hydric soil identification. As the senior writer, she provides informed project oversight and performs final quality assurance / quality control on various types of scientific reports for agency submittal, including: Biological Assessments/Evaluations; Wetland, Shoreline, and Fish and Wildlife Habitat Assessments; Mitigation Plans, and Mitigation Monitoring Reports. She currently performs wetland, stream, and shoreline

delineations and fish and wildlife habitat assessments; prepares scientific reports; and provides environmental permitting and regulatory compliance assistance to support a wide range of commercial, industrial, and multi-family residential land use projects.

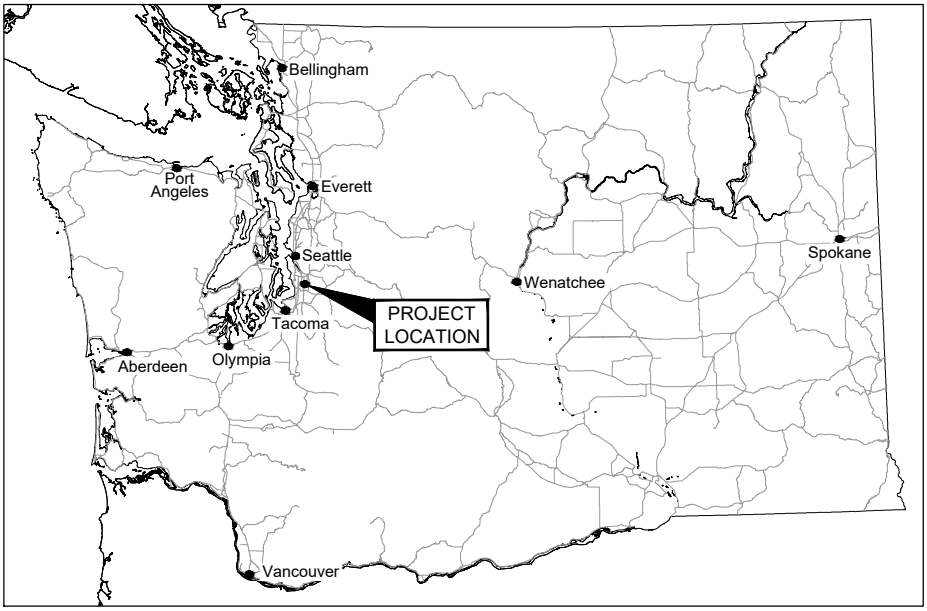
Kyla earned a Bachelor of Science degree in Environmental Science and Resource Management from the University of Washington, Seattle with a focus in Wildlife Conservation and a minor in Quantitative Science. She has also completed additional coursework in Comprehensive Bird Biology from Cornell University. Ms. Caddey is a Certified Professional Wetland Scientist (PWS #3479) through the Society of Wetland Scientists and Certified Ecologist through the Ecological Society of America. She has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), is a Pierce County Qualified Wetland Specialist and Wildlife Biologist, and is a USFWS-approved Mazama pocket gopher survey biologist. Kyla has been formally trained through the Washington State Department of Ecology, Coastal Training Program, and the Washington Native Plant Society in winter twig and grass, sedge, and rush identification for Western WA; Using the Credit-Debit Method in Estimating Wetland Mitigation Needs; How to Determine the Ordinary High Water Mark; Using Field Indicators for Hydric Soils; How to Administer Development Permits in Washington Shorelines; Puget Sound Coastal Processes; and Forage Fish Survey Techniques. Additionally, she has received formal training in preparing WSDOT Biological Assessments.

Morgan Kentch

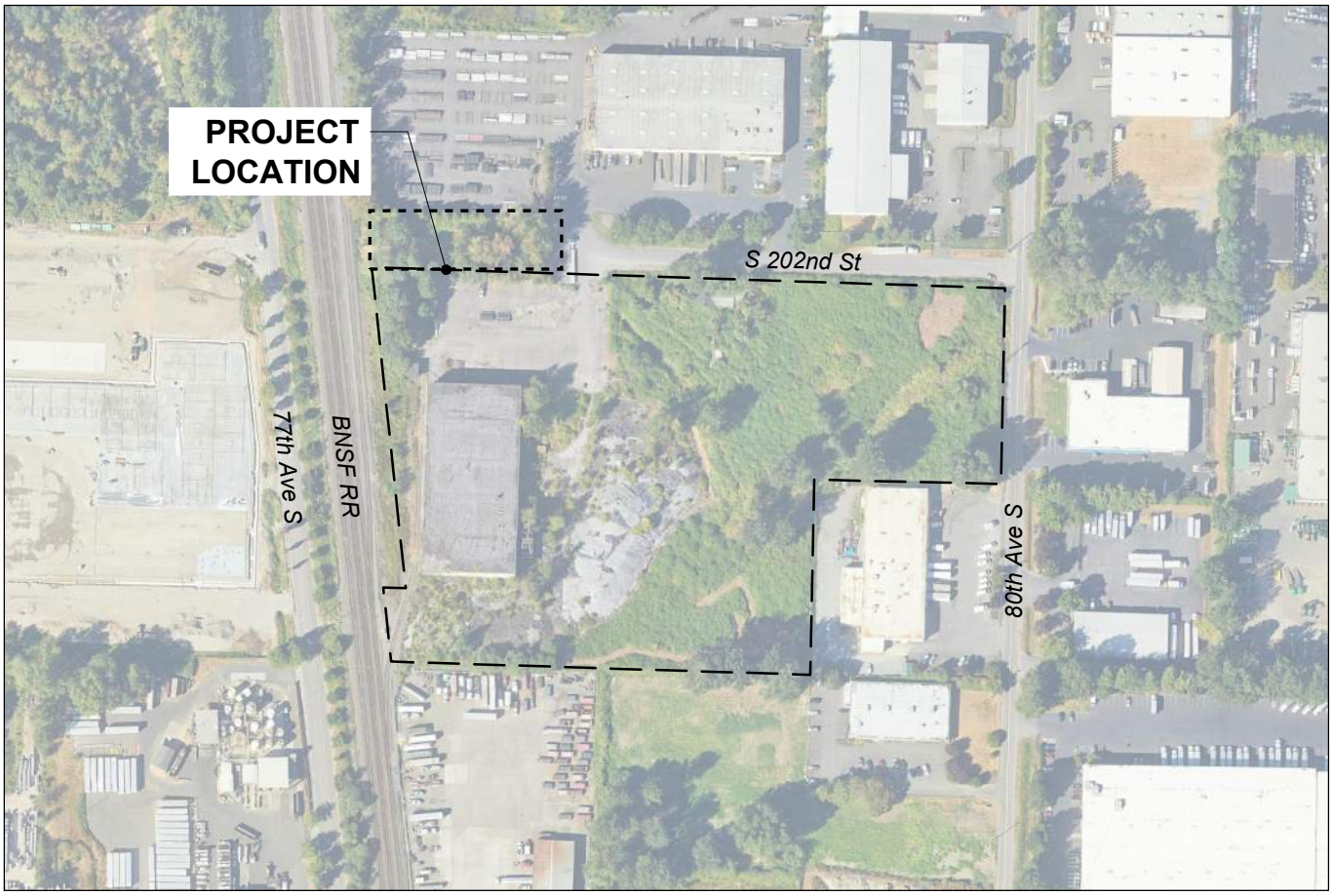
Staff Scientist
Professional Experience: 3 years

Morgan Kentch is a Staff Scientist with a background concentrating in marine biology and aquatic ecosystems in Washington State. Morgan earned her Bachelor of Science degree in Biology with marine emphasis from Western Washington University, Bellingham. There she received extensive, hands-on experience working in lab and field settings, and studying local marine and aquatic organisms and ecosystems. One of Morgan's more exceptional projects included monitoring a stream restoration project for the City of Bellingham by assessing stream habitat and biotic quality, collecting data, identifying local stream invertebrates, and writing a report outlining analyzed results. Morgan also participated in a study abroad program in La Paz, Baja California Sur, where she led an independent study on the effects of temperature on bioluminescent organisms in a local bay. Through this project, she demonstrated a strong understanding of collecting background research, following the scientific method, conducting scientific research, and writing a scientific paper formatted for journal submission.

Morgan currently assists in wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process for various land use projects. She has received wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), and has received formal training through the Washington State Department of Ecology and Coastal Training Program in Using the 2014 Wetland Rating System, and How to Conduct a Forage Fish Survey.



WASHINGTON LOCATION MAP



VICINITY MAP

0 300 600

SCALE IN FEET

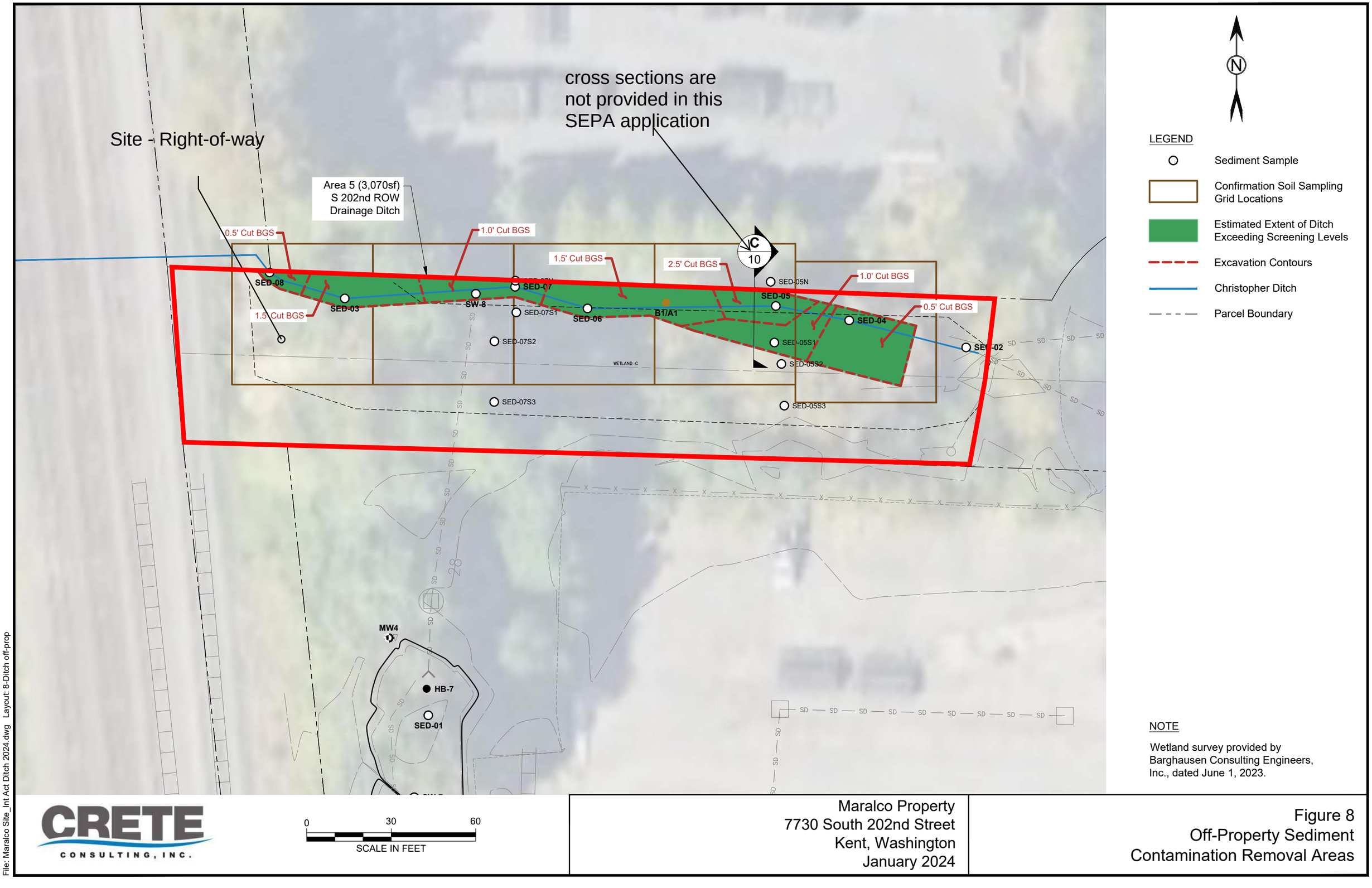
Source: Google Earth. Image date 8/25/2022

CRETE CONSULTING, INC.

Maralco Property
7730 South 202nd Street
Kent, Washington
December 2023

Figure 1
Vicinity Map

File: Maralco Vicmap.dwg Layout: Vicmap



NOTE

Wetland survey provided by Barghausen Consulting Engineers, Inc., dated June 1, 2023.

CRETE CONSULTING, INC.

0 30 60
SCALE IN FEET

Maralco Property
7730 South 202nd Street
Kent, Washington
January 2024

Figure 8
Off-Property Sediment Contamination Removal Areas

File: Maralco Site_Int Act Ditch 2024.dwg Layout: 8-Ditch off-prop

KENT
WASHINGTON
PLANNING SERVICES

Planning Services
Location: 400 W. Gowe • Mail to: 220 4th Avenue South • Kent, WA 98032-5895
Permit Center (253) 856-5302 FAX: (253) 856-6412
www.ci.kent.wa.us/permitcenter

Environmental Checklist Application Form

Public Notice Board and Application Fee...See Fee Schedule

Please print in black ink only.

To be completed by Staff:

Application # _____ KIVA # _____

Received by: _____ Date: _____ Processing Fee: _____

A. Staff review determined that project:

___ Meets the categorically exempt criteria.

___ Has no probable significant adverse environmental impact(s) and application should be processed without further consideration of environmental effects.

___ Has probable, significant impact(s) that can be mitigated through conditions. EIS not necessary.

___ Has probable, significant adverse environmental impact(s). An Environmental Impact Statement will be prepared.

___ An Environmental Impact Statement for this project has already been prepared.

_____ _____
Signature of Responsible Official Date

B. Comments:

_____

_____

_____

C. Type of Permit or Action Requested:

_____

_____

D. Zoning District:

_____

To be completed by Applicant:

SEPA CONTACTS AND PROFESSIONALS

Please fill out applicable boxes for all different professionals:

Applicant
Name: Kyle Siekawitch
Company Name: Bridge Industrial
Contact Person: Kyle Siekawitch
Address: 10655 N.E. 4th Street, Suite 212
City: Bellevue State: WA Zip: 98004
Phones(s): 425-749-4325 Fax:
Email: ksiekawitch@bridgeindustrial.com

Property Owner #1 *(if more than 1 property owner, use additional sheets)*
Name:
Company Name: Bridge Industrial
Contact Person: Kyle Siekawitch
Address: 10655 N.E. 4th Street, Suite 212
City: Bellevue State: WA Zip: 94004
Phones(s): 425-749-4325 Fax:
Email: ksiekawitch@bridgeindustrial.com

Project Contact *(person receiving all project communications if different from applicant)*
Name: Dan Balmelli / Betsy Dyer
Company Name: Barghausen Consulting Engineers, Inc.
Contact Person: Dan Balmelli / Betsy Dyer
Address: 18215 - 72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): (425) 251-6222 Fax: (425) 251-8782
Email: dbalmelli@barghausen.com/bdyer@barghausen.com

Contractor Not selected yet
Company Name: Not selected yet
Engineer Name:
ID#: Exp. Date:
Address:
City: State: Zip:
Phones(s): Fax:
Email:

Architect
Company Name: Synthesis
Engineer Name: Randy Brown
ID#: Exp. Date:
Address: 12503 N.E. Bel-Red Road, Suite 100
City: Bellevue State: WA Zip: 98105
Phones(s): 425-646-18818 Fax:
Email: randy.brown@synthesis.com

Engineer
Company Name: Barghausen Consulting Engineers, Inc.
Engineer Name: Dan Balmelli
ID#: 25672 Exp. Date: 9/23/2021
Address: 18215-72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): 425-251-6222 Fax:
Email: dbalmelli@barghausen.com

Consultant
Company Name: Barghausen Consulting Engineers, Inc.
Engineer Name: Dan Balmelli
Contact Person: Betsy Dyer
Address: 18215 – 72nd Avenue South
City: Kent State: WA Zip: 98032
Phones(s): 425-251-6222 Fax:
Email: dbalmelli@barghausen.com/bdyer@barghausen.com

To be completed by Applicant:

a. Background Information:

1. Name of Project: Maralco Kent Redevelopment

2. Name of Applicant: Bridge Industrial

   Mailing Address: 10655 N.E. 4th Street, Suite 212, Bellevue, WA 98004

3. Contact Person: Kyle Siekawitch, Bridge Industrial / Dan Balmelli, Barghausen Engineers

   Telephone: 425-749-4325 / 425-251-6222

   (Note that all correspondence will be mailed to the applicant listed above unless a project contact is designated here and on Page 2 of application.)

4. Applicant is (owner, agent, other): Owner

5. **Location**. Give general location of proposed project (street address, nearest intersection of streets and section, township and range). The site is located on the southwest corner of South 202nd Street and 80th Avenue South. The site includes the undeveloped portion of the South 202nd Street right-of-way located west of the paved street and cul-de-sac. The site is within a portion of the SE ¼ of Section 1, Township 22N, Range 4E, W.M., Kent, King County, WA
   Site Address: 7730 South 202nd Street

6. **Legal description and tax identification number**

   a. **Legal description (if lengthy, attach as separate sheet.)**: North half of Lot 25 and all of Lots 26 and 27, O'Brien Station Garden Tracts No. 2, according to Plat thereof, recorded in Volume 15 of Plats, page 66, in King County, Washington. See attached ALTA survey and title report.

   b. **Tax identification number:** 631500-0300

7. **Existing conditions**: Give a general description of the property and existing improvements, size, topography, vegetation, soil, drainage, natural features, etc. (If necessary, attach a separate sheet). The site contains an abandoned industrial building previously used as an aluminum smelter with paved parking, stockpiles of Dross, a by-product of the smelting process, and a small residential structure. The site ~~also~~ contains a Category II~~I~~IV~~</u>~~ wetland (Wetland A) on the eastern portion and two drainage ditches to be treated as a Type 3~~2~~ stream (Stream Z). The site also contains off-property Category IV Wetland C.

8. Site Area: 12.~~05~~15 acres Site Dimensions: Approx. 630 ft. x 1080 ft. Right-of-way is approximately 12 ft x 280 ft.

9. **Project description:** Give a brief, complete description of the intended use of the property or project including all proposed uses, days and hours of operation and the size of the project and site. (Attach site plans as described in the instructions): The proposed project consists of redeveloping the site for construction of an approximate 178,703 square foot warehouse building on the12.1~~0~~5-acre site located in the City of Kent, King County, Washington. Along with building construction, the project will include demolition of the existing industrial building previously used as an aluminum smelter, removal and cleanup of aluminum smelter waste and excavation of contaminated ~~soils~~soil and sediment per Department of Ecology regulations and removal of a residential structure also located on the site. Other site improvements will include grading activities, stormwater facility, water and sanitary sewer extensions and connections, landscaping, franchise utilities and frontage road improvements along South 202nd Street and 80th Avenue South. The eastern portion of the site contains a Category III~~V~~ wetland (Wetland A) and two drainage ditches to be treated as a Type 3 stream (Stream Z). Portions of the western portion of the wetland will be filled and wetland creation and wetland enhancement will take place on the remaining portion of the wetland on the site. One off-property wetland (Offsite Wetland C) is located within the right-of-way. Within the right-of-way, the proposed project includes excavation of contaminated soil and sediment that accumulated within the drainage ditch. Removal will be limited to the drainage ditch itself, which is approximately 22 feet at the widest with an average width of about 10 feet across. Removal extends at the deepest to 2.5 feet below ground surface. The area will be stabilized and backfilled to pre-removal conditions. This work is being conducted with direct oversight from the Washington Department of Ecology as part of an Interim Action Work Plan (IAWP) under an Agreed Order (DE 22343). Two potentially regulated wetlands (Offsite Wetlands B and D) are located off site and are not expected to be impacted. ~~Three potentially regulated wetlands (Offsite Wetlands B-D) are located offsite and are not expected to be impacted.~~

10. **Schedule:** Describe the timing or schedule (include phasing and construction date, if possible). Construction to start summer of ~~2022~~2024 or as soon as applicable permits are issued.

11. **Future Plans:** Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? If yes, explain. There are no future plans beyond the scope of work outlined in this document.

12. **Permits/Approvals:** List all permits or approvals for this project from local, state, federal, or other agencies for which you have applied or will apply as required for your proposal.

Agency	Permit Type	Date Submitted*	Number	Status**
City of Kent	SEPA			
City of Kent	Critical Areas Approval			
City of Kent	Industrial Design Review			
City of Kent	Critical Area Permit			
City of Kent	Demolition Permit			
City of Kent	Building Permit			
City of Kent	Plumbing and Mechanical Permits			

City of Kent	Fire Permit			
Wash. State Dept. of Labor and Industries	Electrical Permit			
City of Kent	Grading Permit			
City of Kent	Civil Construction Permit			
City of Kent	Water Permit			
City of Kent	Sanitary Sewer Permit			
City of Kent	Street and Street Cut Permit			
City of Kent	Flood Zone Permit			
Department of Ecology	NPDES			
USACE	Section 404			

*Leave blank if not submitted
**Approved, denied or pending

13. **Environmental Information:** List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. Environmental Checklist
Geotechnical Engineering Report
Stormwater Site Plan
Stormwater Pollution Prevention Plan
Wetland and Fish and Wildlife Assessment Report
Conceptual Mitigation Plan
Cleanup work is being conducted with direct oversight from the Washington Department of Ecology as part of an Interim Action Work Plan (IAWP) under an Ecology Agreed Order (DE 22343).

14. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. None are known to exist to our knowledge.

b. Environmental Elements

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1. Earth

a. General description of the site (circle one):

Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? The site is predominantly flat. The steepest slope is approximately 25 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long term significance and whether the proposal results in removing any of these soils.
Per the geotechnical information report, the site is underlain by granular fill soils and Dross waste material from the aluminum smelting process. One to three feet of existing medium dense to dense sand and gravel fill was found underlying three-inches of asphalt pavement in the northern paved area of the site. A concrete slab over dense sand and gravel fill was found in the southeast corner. Refer to the geotechnical engineering report prepared by Terra Associates, Inc. for additional information.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. None are known to exist to our knowledge.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill. Approximately ~~6~~10,050 cubic yards of cut and 54,288 cubic yards of fill will be used to prepare site for building construction. Source of fill is unknown at this time but will be from an approved source.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Yes, depending on weather conditions at the time of construction, erosion could occur as a result of construction activities.

Evaluation for Agency use only

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximately 70 percent of the site will be impervious surface upon project completion.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any. A temporary erosion and sedimentation control plan will be designed per City of Kent standards and implemented for the construction phase of the project to reduce and control erosion impacts. An Ecology construction stormwater pollution prevention plan will also be implemented for the construction phase.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities of known. During the construction phase of the project, emissions from construction equipment would be present from approximately 7 am to 6 pm Monday through Friday. Upon project completion, emissions from vehicular traffic to and from the site would be present from approximately 7 am to 6 pm Monday through Friday.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. None are known to exist to our knowledge.

c. Proposed measures to reduce or control emissions or other impacts to air, if any. Construction equipment will comply with state emissions standards. No other specific measures are proposed.

3. Water

a. Surface Water:

i. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, salt water, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. A Category III~~V~~ wetland (Wetland A), a Category IV wetland (Wetland C), and two drainage ditches to be treated as a Type 3 stream (Stream Z) are located on the site.

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ii. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. Yes, ~~18,038~~21,200 square feet of onsite ~~wetland~~and off property wetlands will be impacted by the redevelopment project. Wetland mitigation in the form of wetland creation and enhancement will total ~~62,194~~65,264 square feet and buffer enhancement will total 4,994 square feet. Refer to the Wetland and Fish and Wildlife Assessment Report prepared by Soundview Consultants.

iii. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. Approximately 13,044 square feet of fill will be placed in the wetland to prepare the site for proposed redevelopment. The off-property wetland will be restored to pre-cleanup elevations, with approximately 3,000 square feet of fill.

iv. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known. Dewatering may be required during construction depending on weather conditions.

v. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. Yes, the site is located within a 100-year flood plain per FIRM map panel 53033C0986G, dated August 19, 2020.

vi. Does the proposal involve any discharge of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. No waste materials will be discharged to surface waters.

b. Ground Water:

i. Will ground water be withdrawn from a well for drinking or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to ground water? Give general description, purpose, and approximate quantities, if known. No water discharged to ground water under this proposal. Dewatering may

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be necessary during the construction phase of the project.

ii. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. No waste materials will be discharged into the ground. All sanitary sewer effluent will be collected and routed into the existing City of Kent sanitary sewer system.

c. Water Runoff (including storm water):

i. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. The source of runoff will be from building rooftop and pavement areas. Stormwater will be routed through a modular wetland for water quality treatment and then to an underground detention vault. Stormwater from the vault will be released to the existing wetland to the south of the site.

ii. Could waste materials enter ground or surface waters? If so, generally describe. No waste material will enter ground or surface waters under this proposal.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any. A storm drainage plan will be designed per City of Kent standards and constructed to control runoff water impacts from the proposed redevelopment.

4. Plants

a. Check or circle types of vegetation found on the site:

☒ Deciduous tree: alder, maple, aspen, other _____

☐ Evergreen tree: fir, cedar, pine, other _____

☒ Shrubs

☐ Grass

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- ☐ Pasture
- ☐ Crop or grain
- ☐ Orchards, vineyards or other permanent crops
- ☐ Wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- ☐ Water plants: water lily, eelgrass, milfoil, other
- ☒ Other types of vegetation Himalayan blackberry, non-native invasive Canadian thistle, poison hemlock, beaked hazelnut, colonial bentgrass

b. What kind and amount of vegetation will be removed or altered? All vegetation on the western portions of the site to be redeveloped will be removed. In additional, a total of ~~18,038~~21,200 square feet of vegetation will be removed for direct and indirect wetland impacts to support the proposed development. The existing conditions of the wetland are degraded due to the dominance of non-native invasive species and debris waste plies. Wetland creation and enhancement activities and non-compensatory buffer enhancement will include the removal of non-native invasive species and replanting of disturbed areas with native trees, shrubs, and groundcover. Refer to the Wetland and Fish and Wildlife Habitat Assessment Report prepared by Soundview Consultants (2022) and included with this submittal.

c. List threatened or endangered species known to be on or near the site. No threatened and endangered plant species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any. Approximately 46,422 Square feet of depressional wetland will be created and approximately ~~15,772~~18,842 square feet of remaining wetland and 59,113 square feet of associated buffer area will be enhanced. For further details, please refer to the Conceptual Mitigation Plan prepared by Soundview Consultants (2022). Landscaping will be designed to City of Kent standards and constructed to enhance vegetation on the site. Areas of wetland to be filled will be mitigated on the site.

e. List all noxious weeds and invasive species known to be on or near the site. Himalayan blackberry, colonial bentgrass, common lady fern, hairy brackenfern, Canadian thistle and poison hemlock are known to be on the site.

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5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

Birds: hawk, heron, eagle, songbirds, other _____

Mammals: deer, bear, elk, beaver, other _____

Fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened or endangered species known to be on or near the site. There are no known threatened or endangered species on or near the site to our knowledge.

c. Is the site part of a migration route? If so, explain. The site, located in Western Washington, lies within the regional Pacific Flyway Migratory Route for birds.

d. Proposed measures to preserve on enhance wildlife, if any. The removal of contaminated soil and sediment, wetland enhancement and implementation of new landscaping per City of Kent standards will enhance wildlife on or near the site.

e. List any invasive animal species known to be on or near the site. There are no known invasive animal species on or near the site to our knowledge.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. The proposed building and site will use electricity for lighting and other energy needs and natural gas for heating.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. It is not anticipated that the project will affect the use of solar energy by adjacent properties.

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c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any. The building will meet the current energy code requirements. No other specific measures are proposed.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as result of this proposal? If so, describe. No.

i. Describe any known or possible contamination at the site from present or past uses. The site was previously an aluminum smelter plant and the byproduct of the process, Dross, remains in areas on the site.

ii. Describe existing hazardous chemical conditions that might affect project development and design. This includes liquid and gas transmission pipelines located within the project area and in the vicinity. Stockpiles of Dross, the byproduct of aluminum processing, and dross-contaminated soil and sediment are~~is~~ located on the site and will be removed and the site cleaned per Department of Ecology regulations.

iii. Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. Fuel necessary for construction equipment would be on the site during the construction phase of the project. No hazardous chemicals are anticipated to be on the site upon project completion.

iv. Describe special emergency services that might be required. Other than fire, police, and medical services already available in the area, no other special emergency services are anticipated.

v. Proposed measures to reduce or control environmental health hazards, if any. A spill prevention plan will be implemented by the contractor for use on the site during the construction phase of the project. No other specific measures are proposed.

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b. Noise:

i. What types of noise exist in the area which may affect your project (for example: traffic, equipment operation, other)?

Noise generated from vehicular traffic on area roadways would exist but would not be anticipated to affect the proposed project.

ii. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. On a short-term basis, noise from construction equipment would be present from approximately 7 am to 6 pm Monday through Friday. On a long-term basis, noise from vehicular and truck traffic to and from the site could be present 24/7.

vi. Proposed measures to reduce or control noise impacts, if any. Construction equipment will be maintained, and the use of perimeter and on-site landscaping will help to contain noise levels generated by the proposed redevelopment.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on or nearby or adjacent properties? If so, describe.
The site is an abandoned aluminum smelter. BNRR is located to the west and South 202nd Street is located to the north. All surrounding properties in this area are development as industrial or warehouse use.

b. Has the site been used or working farmlands or working forest lands? If so, describe. Due to the location of the site in the Kent valley area, it is possible the site was used for agriculture in the past. There are currently no working farm or managed forest lands on or near the site.

c. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not yet been designated, how many

Evaluation for Agency use only

acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
There are no agricultural or forest lands on or near the site to our knowledge.

i. Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling and harvesting? If so, how: The proposed development would not be anticipated to affect any working farm or managed forest lands.

d. Describe any structures on the site. One industrial use building and a residential house are located on the site.

e. Will any structures be demolished? If so, what? All structures will be removed for construction of the proposed project.

f. What is the current zoning classification of the site? The zoning classification is I-3 – Heavy Industrial .

g. What is the current comprehensive plan designation for the site? The comprehensive plan designation is Industrial.

h. If applicable, what is the current shoreline master program designation of the site? N/A

i. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify. The eastern portion of the site contains a wetland and a stream. The off-property S. 202nd right-of-way also contains a wetland.

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j. Approximately how many people would reside or work in the completed project? The exact use of the building is unknown at this time, but per Washington-amended building code, the maximum number of people for the suggested typical warehouse-type occupancy (5% office and 95% warehouse), the calculated number would be 258 people.

k. Approximately how many people would the completed project displace? No persons will be displaced.

l. Proposed measures to avoid or reduce displacement impacts, if any. No specific measures are proposed.

m. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any. The project is an allowable use within the current zoning designation and will be designed to meet City of Kent zoning and development standards.

n. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long term commercial significance, if any. There are no working farm or managed forest lands near the site to our knowledge.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low income housing. N/A

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low income housing. One abandoned residential structure will be removed.

c. Proposed measures to reduce or control housing impacts, if any. N/A

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10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? Maximum parapet height will be no more than 85-foot as allowed by City of Kent zoning and design standards. The building exterior walls will be constructed of tilt-up concrete panels.

b. What views in the immediate vicinity would be altered or obstructed? Some views from adjacent properties will be altered by as a result of the redevelopment, however, it is not anticipated that any views will be entirely blocked.

c. Proposed measures to reduce or control aesthetic impacts, if any. The building will be designed to meet city of Kent design standards. No other measures are proposed.

11. Light and Glare

a. What type of light or glare will the proposals produce? What time of day would it mainly occur? Glare from building window glass could be present during daylight hours and light from building and parking lot lighting could be present during early morning and evening hours.

b. Could light or glare from the finished project be a safety hazard or interfere with views? It is not anticipated that any potential light or glare produced by the proposed redevelopment of the site would be a safety hazard.

c. What existing off-site sources of light or glare may affect your proposal? Light from vehicular traffic on area roadways and from adjacent developed properties would be present but would not be anticipated to be a safety hazard.

d. Proposed measures to reduce or control light and glare impacts, if any. Window glass will be non-glare and lot lighting will be shielded and directed inward. The use of onsite perimeter landscaping will also help to contain light produced by the development to within in the site.

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12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? There are no recreational opportunities on or near the site.

b. Would the proposed project displace any existing recreational uses? If so, describe. No recreational uses will be displaced.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any. No specific measures as proposed.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.
No structures on the site are over 45 years old. There is one residential house built located long the northern propoery line that is not shown on County records. A search conducted using the Washington Information System for Architectural or Archeological Records Data (WISAARD) did not list this structure.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.
None are known to exit to our knowledge. No studies have been prepared to date.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.
No assessment of the site has been prepared to date. A search of the site and surrounding areas using the WISAARD data base did not list any properties on or near the site with potential cultural or historic impacts.

Evaluation for Agency use only

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
No specific measures are proposed. If cultural artifacts were uncovered on the site during construction, the proper agencies would be contacted.

Transportation

a. Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any. Access to the site will be provided via two driveways onto South 202nd Street.

b. Is site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? No, the nearest transit stop is King County Metro Bus Route 153 at the intersection of South 200th Street and East Valley, approximately 1/2-mile from the site.

c. How many parking spaces would the completed project or non-project proposal have? How many would the project eliminate? Approximately 178 parking spaces will be provided. No parking will be eliminated

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). Yes, half street frontage road improvements along South 202nd Street and 80th Avenue South may be required to include pavement, curb/gutter, sidewalk, street trees, street lighting, and right-of-way dedication as determined necessary by the City of Kent.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. No.

Evaluation for Agency use only

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-commercial passenger vehicles). What date or transportation models were used to make these estimates? Per the ITE Trip Generation Manual, 10th Edition, Land Use: 150 Warehousing, approximately 310 daily trips are anticipated to be generated by the proposed project with approximately 39 new weekday AM peak hour trips and approximately 42 new weekday PM peak hour trips.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. There are no farm or forest lands on or near the site to our knowledge.

h. Proposed measures to reduce or control transportation impacts, if any. Construction of roadway improvements and payment of City of Kent traffic mitigation fees will reduce transportation impacts.

14. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. The project is a redevelopment of the site and is not anticipated to create a significant increase to public services.

b. Proposed measures to reduce or control direct impacts on public services, if any. Construction of updated utility systems, payment of system development charges and payment of fire and park impact fees and traffic mitigation fees will control impacts to public services.

15. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility

providing the service, and the general construction activities on the site or in the immediate vicinity, which might be needed.

Electricity:	Puget Sound Energy
Natural Gas:	Puget Sound Energy
Water:	City of Kent
Sanitary Sewer:	City of Kent
Telephone:	CenturyLink
Cable:	Comcast
Refuse Service:	Republic Services

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C. Signature

I swear under penalty of perjury that all information provided on this document is true and correct to the best of my knowledge.

Signature:

Printed Name: Daniel K. Balmelli, P.E.

Position and Agency/Organization: Executive Vice President, Barghausen Consulting Engineers

Date: April 8, 2022

DO NOT USE THIS SHEET FOR PROJECT ACTIONS

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D. Supplemental Sheet for Nonproject Actions

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emission to air; production, storage, or release of toxic or hazardous substances; or production of noise? _____

   Proposed measures to avoid or reduce such increases are: _____

2. How would the proposal be likely to affect plants, animals, fish, or marine life? _____

   Proposed measures to protect or conserve plants, animals, fish, or marine life? _____

3. How would the proposal be likely to deplete energy or natural resources? _____

   Proposed measures to protect or conserve energy and natural resources are: _____

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands? _____

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Proposed measures to protect such resources or to avoid or reduce impacts are: _____

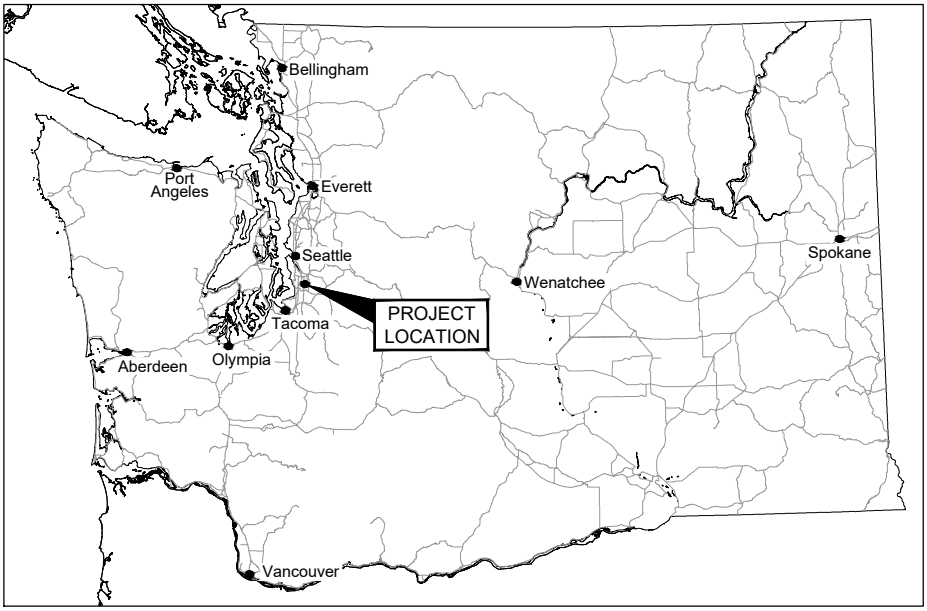
5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans? _____

Proposed measures to avoid or reduce shoreline and land use impacts are: _____

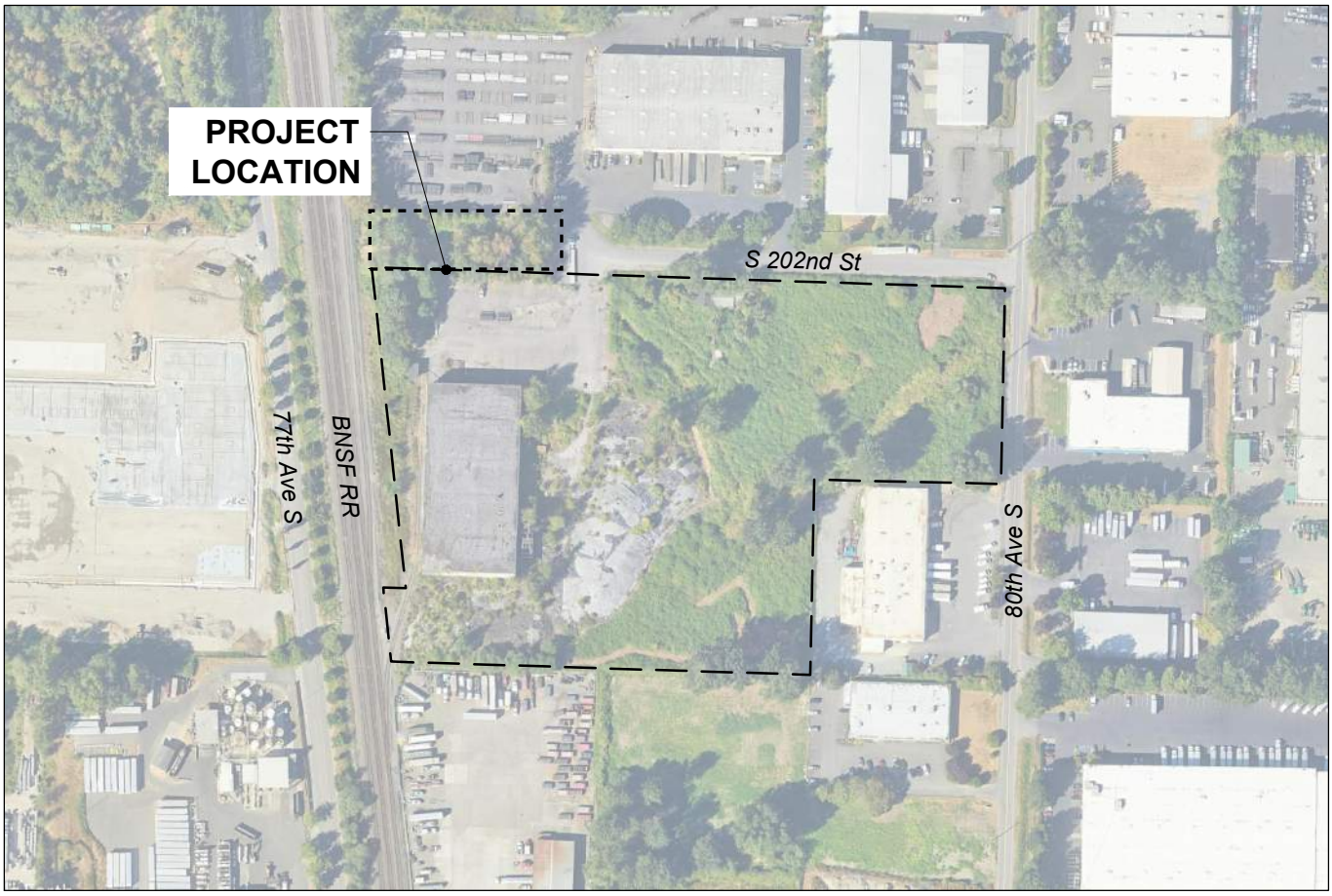
6. How would the proposal be likely to increase demands on transportation or public services and utilities? _____

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.



WASHINGTON LOCATION MAP



VICINITY MAP

0 300 600

SCALE IN FEET

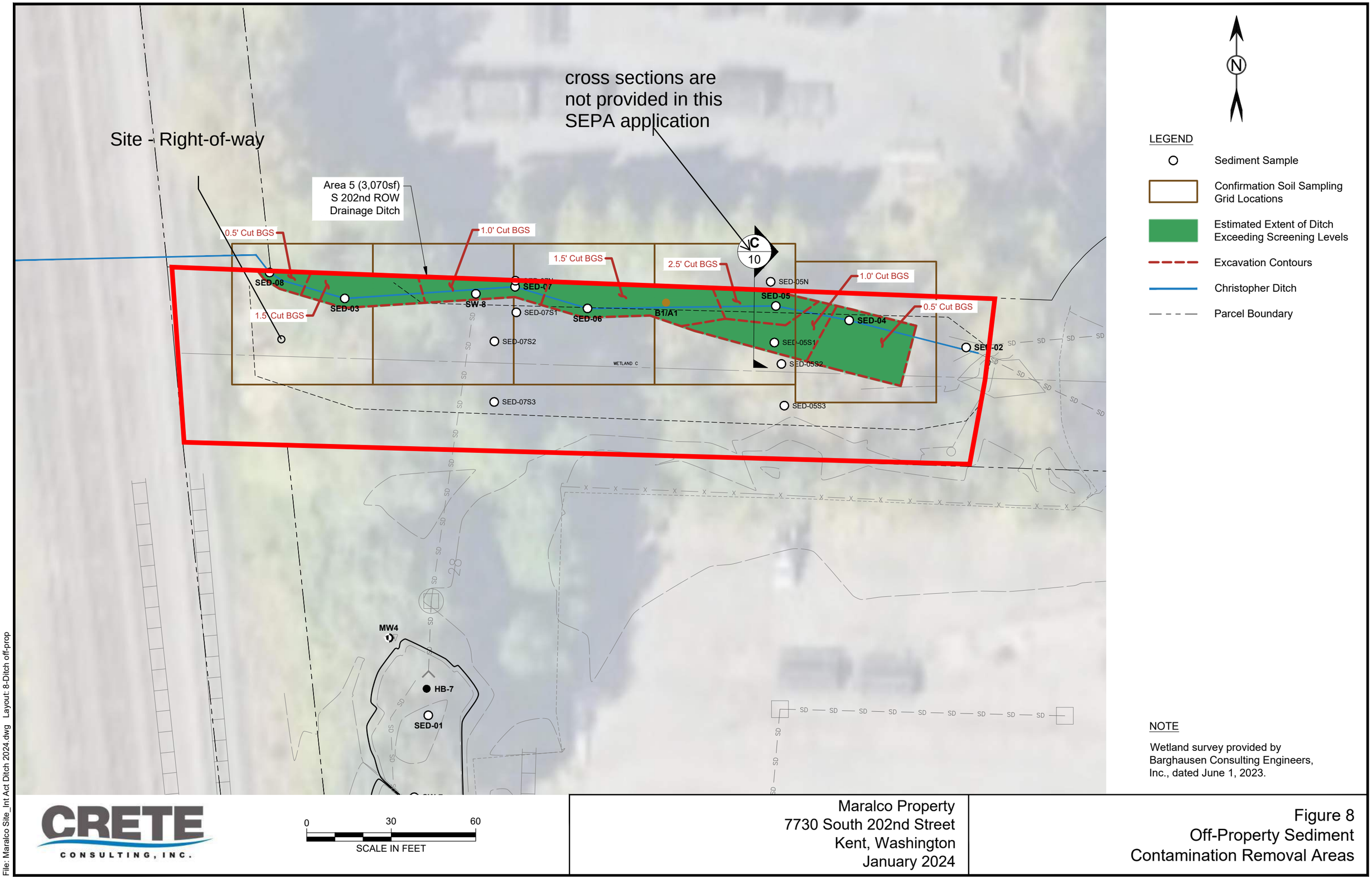
Source: Google Earth. Image date 8/25/2022

CRETE CONSULTING, INC.

Maralco Property
7730 South 202nd Street
Kent, Washington
December 2023

Figure 1
Vicinity Map

File: Maralco Vicmap.dwg Layout: Vicmap



NOTE

Wetland survey provided by Barghausen Consulting Engineers, Inc., dated June 1, 2023.

CRETE CONSULTING, INC.

0 30 60
SCALE IN FEET

Maralco Property
7730 South 202nd Street
Kent, Washington
January 2024

Figure 8
Off-Property Sediment Contamination Removal Areas

File: Maralco Site_Int Act Ditch 2024.dwg Layout: 8-Ditch off-prop

CITY OF KENT
SEPA ADDENDUM DECISION of
REVISED MITIGATED DETERMINATION OF NONSIGNIFICANCE

Environmental Checklist No.
RPSW-2221350 (Original Review)
RPSW-2241048 (Addendum Review)

Project: Bridge Maralco

Description: The proposed project consists of redeveloping the site for construction of an approximate 178,703 square foot warehouse building on the ~~12.05~~ 12.15-acre site located in the City of Kent, King County, Washington. Along with building construction, the project will include demolition of the existing industrial building previously used as an aluminum smelter, removal and cleanup of contaminated soils per Department of Ecology regulations, and removal of a residential structure also located on the site.

Additional contamination has been identified within the S 202nd St right-of-way along the northern property line, so the scope of work has been revised for the proposed project to include excavation of contaminated soil and sediment that accumulated within the adjacent drainage ditch. Removal will be limited to the drainage ditch itself, which is approximately 22 feet at the widest with an average width of about 10 feet across. Removal extends at the deepest to 2.5 feet below ground surface. The area will be stabilized and backfilled to pre-removal conditions. This work is being conducted with direct oversight from the Washington Department of Ecology as part of an Interim Action Work Plan (IAWP) under an Agreed Order (DE 22343).

Location: 7730 South 202nd St, Kent, WA and the nearby right-of-way areas
Parcel id number 6315000300

Applicant: Barghausen Engineers, Dan Balmelli / Betsy Dyer

Lead Agency: City of Kent

Acting as the lead agency for this proposal, the City of Kent previously issued a SEPA MDNS determination on May 4, 2023. After review of a revised checklist evaluating the expanded scope of work based on a discovery of additional contamination in the adjacent right-of-way near the site, the City has determined that the additional contamination remediation work proposed does not have any additional probable significant adverse impact(s) on the environment. Subject to KCC 11.03.320 and WAC 197-11-600(4)(c), and the procedural requirements in WAC 197-11-625 and KCC 11.03.410(A), the City is issuing this addendum decision. This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

Responsible Official: Nate Schildmeyer, AICP
Position/Title: Current Planning Manager/SEPA Official

Address: 220 Fourth Avenue S, Kent, WA 98032 Telephone: (253) 856-5454

Dated: September 27, 2024 Signature _____

CONDITIONS/MITIGATION MEASURES:

1. The Remedial Investigation and Feasibility Study (RI/FS) must be completed, and a Cleanup Action Plan approved for the full remediation of the site and associated areas of contamination prior to City approval of construction permits and/or grade and fill permits for this development.

2. The applicant shall indicate if other agencies have reviewed and approved the credit-debit calculations when submitting the final mitigation plans.

3. A sensitive areas protection easement containing all lands covered by water and their associated protected buffers, as allowed in the final critical areas mitigation plans for the project, shall be recorded prior to occupancy of the new warehouse building.

4. A final critical areas mitigation plan addressing the wetland impacts proposed by this development, to also now include the contamination clean-up work offsite in the right of way, shall be submitted to the City of Kent and approved prior to the issuance of any development permits.

Appendix C
Health and Safety Plan

APPENDIX C: HEALTH AND SAFETY PLAN

Maralco Site
Kent, Washington

August 30, 2024

Prepared for:

BRIDGE

Prepared by:

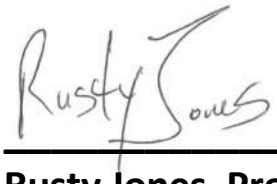
CRETE CONSULTING, INC.

APPENDIX C: HEALTH AND SAFETY PLAN

Maralco Site
Kent, Washington

August 30, 2024

Prepared by:



Rusty Jones, Project Geologist

Reviewed by:

Jamie Stevens, P.E.

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Appendix D Notification of Access to Employee Exposure and Medical Records
Appendix E Material Safety Data Sheets/Safety Data Sheets
Appendix F Job Hazard Analysis Form(s)

Acronyms and Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
APR	air purifying respirator
Bridge	7730 202nd Street, LLC
CAA	Cleanup Action Areas
CRETE	CRETE Consulting, Inc.
CRZ	contaminant reduction zone
EPA	United States Environmental Protection Agency
HASP	Health and Safety Plan
HEPA	high-efficiency particulate air
IDHL	immediately dangerous to health and life
JHA	job hazard analysis
kV	kilovolt
MARALCO	Former Maralco Aluminum Property
MSDS	material safety data sheet
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PID	photoionization detector
PPE	personal protective equipment
REL	reasonable exposure limit
SDS	Safety Data Sheet
Site	Maralco Site
STEL	short-term exposure limit
SSO	Site Safety Officer
SVOC	semi-volatile organic compound
TCE	trichloroethene
TPH	total petroleum hydrocarbons
TLV	threshold limit value
TWA	time weighted average
VOC	volatile organic compound
WAC	Washington Administrative Code

MINIMUM TRAINING REQUIREMENTS

Maralco Site

All workers entering a designated **exclusion zone,** as described below, must have a current 40- or 24-hour training certificate in Hazardous Waste Operations or current 8-hour refresher. All workers on site will be required to have read and signed the Site-Specific Health and Safety Plan and attended a safety orientation. Specific types of site work, hazards, and training requirements are listed in the Job Hazard Assessment in Appendix F of this Plan.

The following table is intended to provide a summary of minimum levels of training for specific workers and job activities on site.

Type of Work Involved	**Minimum Level of Training**
Laborers and Equipment Operators in the Exclusion Zones engaged in disturbance of contaminated media, evaluating potential employee exposures, and otherwise potentially contacting contaminated media where **respiratory protection is or may be required.**	• 40-Hour Hazardous Waste Operations Training and Current 8-Hour Refresher • Project Safety Plan including Health and Safety Orientation • Read/Sign Site-Specific Health and Safety Plan
Laborers and Equipment Operators in the Exclusion Zones engaged in excavation of contaminated soil, evaluating potential employee exposures, and otherwise potentially contacting contaminated soils so long as respiratory protection is not required.	• 24-Hour Hazardous Waste Operations Training and Current 8-Hour Refresher • Project Safety Plan including Health and Safety Orientation • Read/Sign Site-Specific Health and Safety Plan
Workers onsite in clean or support zones for more than 8 hours, such as laborers, repair persons, inspectors, etc. ***Note*: None of these workers are permitted in any portion of the exclusion or contamination reduction zones.**	• Project Safety Plan including Health and Safety Orientation • Read/Sign Site-Specific Health and Safety Plan

1 Introduction

This Health and Safety Plan (HASP) describes the health and safety protocols to be used during activities at the Maralco Site. The Contractors involved in this work will follow their own HASPs. CRETE Consulting, Inc. (CRETE) will oversee remediation activities, such as concrete slab removals, soil excavations, soil confirmation sampling, and waste removal/haulingat the Site.

This plan was written by CRETE, who will work with various contractors, such as remediation contractors, equipment operators, trucking contractors, utility locators, to perform work on the Site. This HASP is unique to activities to be performed by CRETE staff/field managers/Site Safety Officer (SSO). General site information is summarized in Table 1-1. Background information pertaining to site history and general hazards is listed in Table 1-2.

In addition to the requirements set forth in this HASP, Crete personnel shall comply with the HASPs and related protocols of all onsite Contractors and any health and safety protocols required by Bridge Industrial (Bridge).

1.1 Subcontractor Distribution / Acknowledgment

As required by regulation, the Site Safety Officer (SSO) will make available a copy of this Site-Specific Health and Safety Plan to subcontractors hired by CRETE working in contaminated areas and others who may enter the site. Subcontractors and others will read, sign, and return the attached acknowledgment form (Appendix A) and follow these provisions as minimum requirements. Due to their unique work activities, some subcontractors may need to follow more stringent health and safety measures in accordance with applicable regulations (e.g. heavy equipment operation safety, crane operators, etc.). It is anticipated that subcontractors will manage the hazards specific to their trade and equipment, as detailed in each contractor's Accident Prevention Plan or company Health and Safety Plan.

The SSO shall be responsible for informing all individuals assigned to work on the site, or who visit the site within the exclusion or contaminant reduction zones, of the contents of this HASP and for ensuring that each person signs the Site Safety Plan Acknowledgment Form (Appendix A). By signing the Site Safety Plan Acknowledgment Form, individuals recognize the site health and safety hazards, known or suspected, and will adhere to the protocols required to minimize exposure to such hazards. Subcontractors will also adhere to their own HASPs related to the work they are performing (e.g., safe demolition procedures).

All visitors who enter the work zone are required to sign in and sign out with the Field Manager or SSO (Appendix B).

1.2 Site Health and Safety Meetings

A pre-work meeting addressing site-specific health and safety issues shall be held on the first day of mobilization to the site and prior to the commencement of any work activities. Mandatory attendance is required for all personnel assigned to the particular tasks for which the equipment was mobilized. The intent of these meetings is to discuss the site-specific health and safety issues (such as known or suspected contaminants).

At the conclusion of the meeting, personnel are to sign the Site Safety Plan Acknowledgment Form in Appendix A, indicating their attendance and understanding of the health and safety protocols. As additional personnel are assigned to the site, it is the responsibility of the SSO to ensure that new personnel are briefed on site-specific health and safety information and that they also have signed the Site Safety Plan Acknowledgment Form (Appendix A).

Daily tailgate meetings will be held by the SSO or field staff in charge of the day's activities and attendance will be documented in the tailgate meeting form Appendix C).

1.3 Training Requirements

All personnel assigned to work on this site beyond the support zone must have successfully completed 40 hours of Training for Hazardous Waste Site Work, in accordance with Occupational Safety Health Act (OSHA) 29 CFR 1910.120(e)(3), and must be current with their 8-hour Refresher Training, in accordance with OSHA 29 CFR 1910.120(e)(8).

Personnel managing or supervising work on site must also have successfully completed 8 hours of Manager/Supervisor Training, meeting the requirements of 29 CFR 1910.120(e)(4). Documentation of CRETE staff training is maintained in each company's respective databases. Each contractor must maintain documentation of OSHA training for personnel working on site.

Any exceptions to the training requirements will be explicitly specified either in this HASP or through a HASP amendment.

1.4 Medical Monitoring Requirements

All CRETE personnel assigned to work on this site beyond the support zone must be enrolled in a medical surveillance program meeting the requirements of OSHA 29 CFR 1910.120(f). Personnel must have successfully passed an occupational physical within the past 12 months, be medically cleared to work on hazardous waste sites, and be capable of wearing appropriate personal protective equipment (PPE), including any respiratory protection.

Any exceptions to the medical monitoring requirements will be explicitly specified either in this HASP or through a HASP amendment.

1.5 Fit Testing Requirements

All CRETE personnel assigned to work on this site beyond the support zone must be familiar with the requirements in the OSHA respiratory standard (29 CFR 1910.134). All personnel who are required to wear respiratory protection must have successfully passed a respirator fit test within the past 12 months. Personnel who do not have a current fit test are prohibited from working in areas where any potential exists for exceeding OSHA Permissible Exposure Limits. Documentation of a successful respirator fit test for the appropriate type of respirator needed for this work (half-face) must be maintained by each contractor performing onsite work. The SSO will check that the respirator being worn by personnel is the same size, make, and model as that specified on any respirator fit test records from the past 12-month period.

1.6 Project Staff Responsibilities

The SSO is responsible for overall project administration and for coordinating health and safety protocols and procedures for all onsite CRETE personnel at all times. All applicable United States Environmental Protection Agency (EPA), OSHA, state, and local health and safety requirements shall be followed throughout the course of the project. This HASP covers only CRETE personnel onsite. Any person who observes health and safety problems or infractions should immediately report the problem or infraction to appropriate personnel.

1.7 Access to Employee Exposure and Medical Records

OSHA provides employees and their designated representatives a right-of-access to relevant exposure and medical records (29 CFR 1910.20). The “Notification of Access to Employee Exposure and Medical Records” (Appendix D) is to be made accessible to all employees involved with these field operations.

1.8 Hazard Communication

The SSO will advise all CRETE personnel assigned to this site of the hazards associated with working onsite and of the methods to mitigate those hazards and prevent exposures. This information will be presented to personnel prior to initiation of any field activities. The following information regarding site contaminants or any chemicals brought to the site to conduct the work will be presented to site personnel prior to conducting any field work:

- Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) - Appendix E
- Chemical/physical hazards
- Appropriate PPE for protection from exposure
- Labeling

Table 1-1 General Information

Client: Bridge	**Project ID**
Site Name: Maralco Site	
Site Location: 7730 South 202nd Street, Kent WA	
Description of Field Activities: Site inspection, remediation excavation activities, and confirmation sampling.	
Dates of Field Activities: 2024	
Project Manager: Grant Hainsworth, CRETE	**Project Manager Telephone Number:** 253-797-6323
QA Officer: Jamie Stevens, CRETE	**Office:** Tukwila
Site Safety Officer (SSO): Rusty Jones, CRETE	**Field Manger Telephone #** 832-330-1359

The following requirements have been fulfilled for each employee to work onsite:

☒**Completed OSHA 40-Hour HAZWOPER Training**

☒**Current OSHA 8-Hour HAZWOPER Refresher (within last 12 months)**

☒**Current Medical Surveillance Examination (within last 12 months)**

☒**Current Respirator Fit-test (within last 12 months)**

☒**Current First Aid and CPR Training (within last 2 years)**

Note: CRETE employees may not enter a site beyond the support zone unless the training/qualifications listed above are current.

The field manager and the SSO meets all the training requirements listed above and records can be provided upon request.

Table 1-2 Site Background

Overall Hazard Is:			
High: ☐	**Moderate:** ☒	**Low:** ☐	**Unknown:** ☐
Facility Description: The site has known extensive surface metals and metal oxide contamination from historic on-site refining and smelting activities. Limited hydrocarbon soil and groundwater impacts from a former UST. Surface soil contamination (arsenic, chromium, et al.) are present from former outdoor and indoor stockpiles. The majority of the stockpiled waste was removed in 2023. Currently the site is vacant. Work detailed in this HASP may overlap with construction redevelopment work at the site. Redevelopment includes – demotion of site structures, site grading, and construction of a new site building and parking areas.			
Status: Recent construction work included the removal of the large outdoor dross pile and cleaning up and removal of interior dross piles (2023). Limited grading and soil excavation was completed in the Fall of 2023. Much of the site is overgrown with dense vegetation, including blackberry thorny bushes. Wild animals may live in the densely vegetated area. Miscellaneous debris, including sharp metals are present throughout the refinery building. Areas of dross remain under dense vegetation.			
Unusual Features (containers, dikes, buildings, power lines, terrain, etc.): none.			
Site History (worker injury, complaints, regulatory agency action): There are known areas of groundwater and soil contamination above state and federal criteria. Voids may form in the stockpiles and care must be given in case of stockpile void-collapse or shifting.			
Potential Waste Types: Soil and groundwater contamination, metal-laden dust. Unknown pits or sumps may exist with sludge or other waste.			
Liquid: ☒	**Solid:** ☒	**Sludge:** ☒	**Debris:** ☒
Characteristics: Dust			
Corrosive: ☒	**Ignitable:** ☐	**Volatile:** ☒	**Toxic:** ☒
Reactive: ☐	**Unknown:** ☒	**Radioactive:** ☐	**Other (name):** ☐
Hazards posed by site activities (Job Hazard Analysis in Appendix F): Potential exposure to contaminants including petroleum hydrocarbons, VOCs, metals. Free phase petroleum products unlikely to be encountered. Trips, slips, falls, sharp objects and dust inhalation are the main hazards.			
Unusual Hazards: Thorny vegetation is present, and animal wildlife may be present.			

2 Health & Safety Risk Analysis

This section identifies the specific hazards associated with the remedial investigation work and presents an analysis of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate exposure to these hazards. Hazards that cannot be eliminated must be abated by use of engineering controls and/or PPE.

2.1 Description of Site Tasks

This HASP is intended to cover activities in areas where contamination may be encountered at the Project. These activities include:

- Mobilization to the site and driving on the site; coordination with contractors on equipment and supply staging.
- Clearing vegetation for site surveys.
- Excavation surveying and marking/flagging.
- Coordination and oversight of remedial activities including soil excavation and soil stockpiling and loading (roll-offs boxes and trucks)
- Confirmation sampling and GPS data collection and mapping.
- Archaeological monitoring, as required.

A job hazard assessment that evaluates the hazards associated with each of these tasks is included with this Plan as Appendix F.

2.2 General Site Hazards

2.2.1 Lighting

Work areas must have adequate lighting for employees to see to work and identify hazards (5-foot candles minimum, comparable to a single 75- to 100-watt bulb). Personnel should have flashlights available in all indoor or dimly lighted areas for use in the event of a power failure, or if working outdoors after daylight hours. Applicable OSHA standards for lighting (29 CFR 1910.120(m)) shall apply. **Al investigation activities will occur outside and mostly during daylight hours.**

2.2.2 Utilities

All electrical power must have a ground fault circuit interrupter as part of the circuit, including generators. All equipment must be suitable and approved for the class of hazardous atmosphere in which it is being used. Applicable OSHA standards for electric power (29 CFR 1910 Subpart S) shall apply.
No power required tools are needed to complete the scope of work included in this HASP.

Though no expected for this scope of work, if activities require work to be performed in the vicinity of overhead utilities, including power lines, a spotter will be assigned to help operators maneuver equipment in and around the wires.
The following distances will always be maintained around high-tension wires:

- For lines rated 50 kilovolts (kV) or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet.
- For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet.
- In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, 10 feet for voltages over 50 kV, up to and including 345 kV, and 16 feet for voltages up to and including 750 kV.

In addition, all utility pole "guy-wire" support cables will be identified, marked, and/or barricaded prior to work. Unintended equipment or vehicle contact with these guy wires may result in utility poles or power lines falling on personnel or equipment.

2.2.3 Heat Stress

Work will be performed in accordance with WAC 296-62-095 with regard to heat stress.
Site personnel may be required to perform their work tasks in ambient temperatures of 70 degrees F or above or while wearing impervious clothing. All personnel must be instructed on the symptoms of the primary heat-related disorders and how to minimize their chances of becoming affected by them. These disorders, their symptoms, and first-aid measures are outlined below:

- **Heat Rash:** Decreased ability to tolerate heat raised red vesicle on affected areas, and clothes that chafe. Maintain good personnel hygiene and use drying powders or lotions.
- **Heat Cramps:** Muscle spasms and pain in the extremities and abdomen. Rest in cool area and drink plenty of fluids. If pain persists, seek medical attention.
- **Heat Exhaustion:** Shallow breathing; pale, cool, moist, clammy skin, profuse sweating, dizziness, lassitude, and fainting. Rest in a cool area and drink plenty of fluids. Get medical attention prior to returning to work.
- **Heat Stroke:** Red, hot, dry skin, no perspiration, nausea, dizziness, confusion, strong rapid pulse, coma. Cool victim immediately with cool or cold water. Seek immediate medical attention.

At a minimum, personnel wearing non-breathable clothing at temperatures greater than 70 degrees F should take a break every one to two hours and drink plenty of fluids. The intake of an average of one quart of fluids per hour is recommended. CRETE is required to provide enough water on site for each employee to drink one quart per hour on site. A cool or shaded rest area should be used.

2.2.4 Cold Stress

Site personnel will be instructed on the signs, symptoms, and the prevention of cold-related disorders prior to performing specific work tasks. The two major effects of cold stress are frostbite and hypothermia.

- Frostbite: Sudden blanching of the skin progressing to skin with a waxy or white appearance, which is firm to the touch, but the tissue beneath the skin, is resilient to the touch.
- Hypothermia: The symptoms of systematic hypothermia are exhibited as follows: (1) shivering, (2) apathy, listlessness, and (sometimes) rapid cooling of the body to less than 90F, (3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate, (4) freezing of the extremities, and (5) death.

Personnel will monitor themselves and other team members for signs of frostbite and hypothermia. If temperatures fall below 20°F, thermal clothing may be required. Field activities will be curtailed if equivalent wind chill temperatures are less than 0°F, unless operations are of an emergency nature.

2.2.5 Noise

When the noise level of any operation exceeds the 8-hour Time Weighted Average (TWA) of 85 decibels (dB), a hearing protection program meeting the requirements of 29 CFR 1910.95 will be implemented. Noise generation at the site will primarily be created by heavy power equipment (excavators), haul truck, generators, and power equipment attachments (e.g. jack-hammer on excavators during concrete demolition) used by the subcontractors to complete remedial actions and site redevelopment.

2.2.6 Fire Prevention

Operations involving the potential for fire hazards shall be conducted in a manner that minimizes the risk. Non-sparking tools and fire extinguishers shall be used or available as required. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent explosion and/or fire. All power equipment will be required to have inspected, current fire extinguishers.

2.2.7 Severe Weather and Lightning

The SSO will monitor local media resources to identify possible severe weather situations at the project site. Site work may be delayed, postponed, or cancelled due to severe weather based on the SSO's discretion. In the event of a weather emergency, the site will be evacuated in accordance with Section 7 of this document.

Lightning can strike up to a distance of 10 miles, but thunder can only be heard at a distance of 8 miles. Therefore, if site personnel working outdoors hear thunder and/or see lightning, work will be stopped and personnel will move to an indoor location. If indoor facilities are not available, personnel will move inside of passenger vehicles such as cars and pickups. During a thunderstorm with thunder/lightning, avoid trees/poles, standing water, high areas, and metal structures (fences, scaffolding, etc.). Work will resume 30 minutes following the final observance of thunder and/or lightning.

2.2.8 Heavy Equipment

Heavy equipment to be used on this project includes excavators and supporting equipment which will be used by subcontractors. CRETE employees will not be operating any heavy equipment but will be working in the vicinity of this equipment to complete oversite and sampling during environmental oversight. Equipment must be maintained in good working condition and operated in a safe manner. Heavy equipment operators must be trained in the operation and handling of the applicable piece of equipment. Equipment must have audible alarms, rollover protection, seat belts, and be equipped with a fire extinguisher. Subcontractors shall not use equipment that they judge to be unsafe due to deterioration, missing parts, or obvious defects. Visual safety inspections shall be conducted daily and documented inspections shall be conducted monthly.

2.2.9 Slips, Trips, and Falls

Slips, trips, and falls are a major concern while working on any site and account for a large number of occupational accidents. Personnel must be aware of their surroundings while moving about the site. Pathways and work areas must be kept free of debris and supplies to prevent unsafe walking and working conditions. Changes in elevation such as ruts, holes, broken pavement, or berms should be marked, if possible. When water is used during any of the work tasks, care must be taken to avoid creating muddy or slippery conditions. If slippery conditions are unavoidable, barriers and warning signs must be used to warn of these dangers.

2.3 Chemical Hazards

Data summarized in the Interim Action Work Plan (IAWP) Phase 2 indicates that the chemicals listed in Table 2-1 exist at the site in soil. The following soil chemicals have been identified based on at least one detection over a site screening levels:

- Metals (aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, mercury, selenium, nickel, silver, and zinc)
- Non-Metals (Benzene, Toluene, Xylenes, Total, Total Carcinogenic Polycyclic Aromatic Hydrocarbons, bis(2-Ethylhexyl)phthalate, Di-n-octyl Phthalate, Fluoranthene, Fluorene, Naphthalene, 2-Methylnaphthalene, 4-Mehtylphenol, Pyrene).

These metal compounds are associated with the dross waste generated and handled on the Site.
Detailed hazard information for selected chemicals is available through MSDS/SDS in Appendix E, for any chemicals brought on site by CRETE employees. Workers will use appropriate PPE if exposure to a known or suspected contaminated medium is likely.

2.3.1 Chemicals Potentially Used

In addition to the site contaminants, chemical products will be purchased for use at the site. These chemicals may include decontamination materials such as isopropyl alcohol, n-hexane, and soaps (e.g., Alconox). Other materials may be purchased as needed. MSDS/SDS required by OSHA will be obtained for chemical products used at the site. Copies of the MSDS/SDS will be maintained at the site for worker review.

2.3.2 Sample Preservatives

Sample preservatives are not required for the soil sampling called out in the IAWP.

Preservatives including hydrochloric acid and nitric acid may be encountered during sampling activities if additional analysis is added. Safe and proper handling techniques are to be used when collecting samples. Individuals should work upwind from the open sample keeping the bottle away from the breathing zone (approximately one arm's length) to minimize potential exposure. Personnel should be aware of any changes in wind direction that may also affect potential for exposure to vapors. Gloves and safety glasses will always be worn when collecting samples. Sample vessel seals should be immediately replaced after sample is gathered.

Should any sample preservatives come in contact with skin, the exposed area should be thoroughly irrigated with fresh water immediately.

2.3.3 Hazardous Chemicals Present in Materials

Metals – Aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, nickel, lead, and zinc (present in in site soils, dross, and groundwater)

The major route of exposure to metals is via inhalation of dusts, mists, and fumes or through ingestion of dust or contaminated foods. Numerous metals may be inhaled via cigarette smoke. Avoid smoking or eating onsite or prior to doffing PPE. Many of the metal compounds may be encountered as metal oxides at the site. Like all metal compounds, the level of harm depends upon the dose, duration, and work being done. Particulate respirators shall be worn with interacting with the dross materials.

Aluminum has been linked to declining performance in neuropsychological tests (attention, learning, memory). Elevated aluminum content has been found in the brains of persons with Alzheimer's disease. It remains unclear whether this is a cause or an effect of the disease. There is conflicting evidence on carcinogenicity. (NIH website)
Aluminum dross is located at this site and may react slowly with water to produce methane, ammonia, and hydrogen.

The OSHA PEL-TWA for aluminum dust is 10 mg/m3 and the NIOSH REL-TWA is 10 mg/m3.

Antimony powder is a strong reducing agent and may react violently or explosively with water. Antimony is spontaneously flammable in fluorine, chlorine, and bromine.
The OSHA PEL-TWA and NIOSH REL-TWA for antimony is 0.5 mg/m3 and the NIOSH IDLH is 50 mg/m3.

Arsenic-containing dust exposure causes irritation of the upper respiratory tract, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and darkening of the skin and small corns or warts. Ingestion of arsenic-laden dust from swallowing inhaled dust or ingesting contaminated soil may also cause gastrointestinal effects including nausea and vomiting.
The OSHA PEL-TWA for arsenic dust is 0.01 mg/m3 and NIOSH REL-15min is 0.002 mg/m3.

Workers in industries where beryllium is present may be exposed to beryllium by inhaling or contacting beryllium in the air or on surfaces. Inhaling or contacting beryllium can cause an immune response that results in an individual becoming sensitized to beryllium. Individuals with beryllium sensitization are at risk for developing a debilitating disease of the lungs called chronic beryllium disease (CBD) if they inhale airborne beryllium after becoming sensitized. Beryllium-exposed workers may also develop other adverse health effects such as acute beryllium disease, and lung cancer. Beryllium compounds may be present at the site and are generally white, crystalline or powdered material and are generally soluble in water.
The OSHA PEL-TWA for beryllium is 0.2 ug/m3 and the OSHA-STEL is 2.0 ug/m3.

Cadmium can be associated with carcinogenesis, primarily in the lung, but also in the prostate, kidneys, breast, urinary bladder, nasopharynx, pancreas, and hematopoietic system. The liver and kidneys are extremely sensitive to cadmium's toxic effects due to the ability of these tissues to synthesize metallothioneins, which are Cd-inducible proteins that protect the cell by tightly binding the toxic cadmium ions. (NIH website).
The OSHA PEL for cadmium dust is 0.05 mg/m3.

Acute inhaling exposure to chromium concentration and chromic-acid causes upper respiratory tract irritation and occasional asthmatic symptom and dermal exposure causes deep, sharply defined ulcers that are slow to heal. Chromates are also irritating to the skin and mucous membranes. Chronic exposure has been associated with an increased incidence of lung cancer. Chromium accumulates mainly in the liver, spleen, soft tissue, and bone. In the blood, most chromium is bound to plasma proteins, particularly transferrin. Chromium is excreted mainly in the urine.
The OSHA PEL-TWA for chromium dust is 1 mg/m3 and NIOSH REL-TWA is 0.5 mg/m3.

Cobalt is a hard, gray metal that occurs naturally. It can harm the eyes, skin, heart, and lungs. Exposure to cobalt may cause cancer. Workers may be harmed from exposure to cobalt and cobalt-containing products. The level of harm depends upon the dose, duration, and work being done.
The OSHA PEL-TWA for cobalt dust and fume is 0.1 mg/m3 and the NIOSH REL-TWA is 0.05 mg/m3.

Copper compounds can irritate the eyes, nose, throat and can damage the eyes skin, lungs, liver, kidneys. It may increase risk of anemia and Wilson's Disease.
The OSHA PEL-TWA and NIOSH REL-TWA for copper fume is 0.1 mg/m3. The OSHA PEL-TWA and NIOSH REL-TWA for copper compounds is 1 mg/m3.

Nickel exposure may cause irritation to the skin and eyes, harm the lungs, stomach, and kidneys, and may lead to cancer. Chronic nickel exposure has been connected with increased risk of lung cancer, cardiovascular disease, neurological deficits, developmental deficits in childhood, and high blood pressure.
The OSHA PEL-TWA for nickel dust is 0.05 mg/m3 and NIOSH REL-TWA is 0.015 mg/m3.

Lead can affect almost every organ and system in your body. Children bodies absorb more lead than adults do and their brains and nervous systems are more sensitive to the damaging effects of lead, including behavior and learning problems, lower IQ, and hearing problems. Lead can also cause slowed growth and anemia in children. Lead in adults, including pregnant women, can cause hypertension and increased blood pressure. Lead can also cause kidney and reproductive problems in both men and women. In pregnant women, lead can be passed to the unborn baby. In rare cases, lead can cause seizures, coma, and even death.
The OSHA PEL for lead dust is 0.05 mg/m3 and the NIOSH REL-TWA is 0.05 mg/m3.

Zinc would most likely be found in the form of zinc oxide. Primary exposure is inhalation and may produce shills, muscle ache, nausea, fever dry throat, cough, weakness and exhaustion, headache, blurred vision.
The OSHA PEL-TWA and NIOSH REL-TWA for zinc oxide dust and fume is 5 mg/m3 and the NIOSH REL-STEL is 10 mg/m3.

Benzene (present in site soils)

Benzene exposure can occur by inhalation, percutaneous absorption, ingestion, and skin and eye contact. Like other aliphatic and aromatic hydrocarbons, acute overexposure to benzene can cause central nervous system depression. Headache, dizziness, nausea, convulsions, coma, and death can result from elevated exposures. In some cases, acute exposure has resulted in death due to ventricular fibrillation. The principal chronic hazard associated with benzene exposures is its ability to cause changes in blood cells, including anemia and cell abnormalities. Benzene has been demonstrated to cause leukemia in epidemiological studies, and it is recognized as a human carcinogen by the National Institute for Occupational Safety and Health (NIOSH) and other agencies. The Environmental Protection Agency (EPA) currently classifies benzene as a Class A, or confirmed, human carcinogen. **No appreciable concentrations of Benzene Compounds have been identified at the Site.**

Polycyclic Aromatic Hydrocarbons and other Semi Volatile Organic Compounds

Epidemiological evidence suggests that workers exposed to these compounds are at increased risk of cancer at many organ sites, including lungs, kidney and skin. The major route of exposure to these compounds on this project is through inhalation of or skin contact with contaminated soils. **No appreciable concentrations of Polycyclic Aromatic Hydrocarbons and other Semi Volatile Organic Compounds have been identified at the Site.**

Table 2-1 Chemical Hazards

Contaminant	Unit	PEL[a]	TLV[b]	REL[c]	STEL[d]	IDLH[e]	Odor Threshold	IP[f] (in eV)
Benzene	ppm	1	0.1	0.1	1	500	34-119	9.24
Arsenic (as a indicator of other metals)	mg/m^3	0.01	0.01	0.002	NA	5 Ca	None Reported	NA

Note:

[a] OSHA Permissible Exposure Limit (PEL) (8-hour time weighted average [TWA])

[b] American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (8-hour TWA)

[c] National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) (8-hour TWA)

[d] Short-Term Exposure Limit (15-minute TWA that should not be exceeded at any time during the work day)

[e] Immediately Dangerous to Life & Health

[f] Ionization Potential

C = Ceiling Limit (Concentration that should not be exceeded during any part of the working exposure)

CA = Carcinogenic

mg/m^3: milligrams per cubic meter

2.4 Biological Hazards

Project personnel should be provided with the information and training necessary to avoid accidental injury or illness that can result from exposure to biological hazards. This includes ensuring that the site is carefully assessed when personnel are on site so that the hazards associated with biological entities are recognized and eliminated or controlled. Potential biological hazards associated with the project site include animals, such as raccoons and rats; stinging insects, such as bees and yellow jackets; and plants, such as blackberries.

Biological hazards may also include human waste, discarded needle/needle sticks, drug paraphernalia, and exposure to harmful chemicals. Human waste can contain harmful bacteria and viruses that can cause disease. Needle sticks can also transmit diseases, including HIV and hepatitis C. Exposure to toxic chemicals can cause respiratory problems, skin irritation, and other health problems. If these types of hazards are encountered, the location of these items should be secured and the area should be cleaned up by a subcontractor. CRETE employees are not to pick up biological hazards.

3 Personal Protective Equipment

PPE is required for all field work. The level of PPE required varies by the type and duration of potential exposures. The EPA terminology for protective equipment (Levels A, B, C, and D) provides guidance on typical work levels and required PPE. Additional training is required for Levels A and B; CRETE personnel are not permitted to use Level A or Level B at the Site. A guide to the type of chemical protective clothing and respirator cartridges to be used for chemicals commonly encountered during remedial investigations is provided in Table 3-1, and requirements for Level C or Level D PPE are described below.

Respiratory protective equipment shall be NIOSH-approved and use shall conform to OSHA 29 CFR 1910.134.

Table 3-1 PPE Selection Guide

Chemical Hazard	Glove Material	Coverall Material	Boot Material	Respirator Cartridge
Acids • Hydrochloric • Sulfuric	Butyl rubber	Saranex or Butyl rubber apron	Butyl rubber	Acid vapor
Coal Tar • Polyisocyanate • Naphtha	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor
Creosote	Butyl rubber	Polycoated Tyvek	Butyl rubber	Organic vapor
Dry Particulates • Metals • Asbestos	Nitrile rubber	Tyvek	Tyvek	HEPA
Fuel Hydrocarbons • Gasoline • Diesel	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor
Halogens, Aliphatic • Carbon tetrachloride • Ethylene dichloride	Teflon	Polycoated Tyvek	Nitrile rubber	Organic vapor
Halogens, Vinylic • Vinyl chloride	Nitrile rubber	Polycoated Tyvek	Nitrile rubber	Organic vapor

Forsberg, K. and Mansdorf, S.Z., 1997. Quick Selection Guide to Chemical Protective Clothing, Third Edition. John Wiley & Sons, Inc.

3.1 Level C

Level C protection shall be used when:

- Substance(s) require the same level of skin protection as Level B, but a lesser level of respiratory protection.
- The types of air contaminants have been identified, concentrations have been measured, and respirator decision logic indicates that air purifying respirators (APRs) are sufficient to remove the contaminants.

- The substance has adequate warning properties (odor threshold is below occupational exposure limits) and all criteria for the selection of APR have been met.

Level 3 is not expected at this site based on the scope of work and known chemicals remaining, however, field personal may elect to wear Level C and if so the following PPE shall be utilized.

Table 3-2 Level C PPE to be Utilized

(Check Appropriate PPE)

☒	Half-face APR (OSHA/NIOSH-approved)
☐	Full-face APR (OSHA/NIOSH-approved)
☒	Type of Cartridges to be Used: AG/OV/P100
☐	Chemical-resistant clothing <u>check appropriate garments</u> (one-piece coverall; hooded one- or two-piece; chemical splash suit; chemical-resistant hood and apron; disposable chemical coveralls [i.e., Tyvek]) ☐ One-piece coverall ☐ Hooded one- or-two piece chemical splash suit ☐ Chemical-resistant hood and apron ☐ Disposable chemical-resistant coveralls **Fabric Type:**
☒	Disposable inner gloves (surgical)
☐	Disposable chemical-resistant outer gloves **Material Type:**
☐	Chemical-resistant boots with safety toe and steel shank or disposable boot covers for safety toe/work boots **Material Type:**
☒	Work boots with steel toe
☐	Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
☐	Safety goggles
☒	Safety glasses
☒	Hard hat
☐	Hard hat with face shield
☒	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 dB based on an 8-hour TWA). **Type:** foam or rubber ear plugs
☐	**Modifications:** Nitrile gloves when sampling, face mask (Covid)

3.2 Level D

Level D protection will be used when:

- The atmosphere contains no known hazard.
- Work functions preclude splashes, immersions, or the potential for unexpected inhalation of, or contact with, hazardous concentrations of chemicals.
- Atmospheric concentrations of contaminants are less than the Threshold Limit Value (TLV).

Table 3-3 Level D PPE (Minimum Work Uniform Permitted)

(Check Appropriate PPE)

☒	Full-legged pants, safety vest
☒	Work boots with safety toe
☒	Work gloves
☐	Safety goggles
☒	Safety glasses
☒	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 dB based on an 8-hour TWA)
☒	Hard hat
☐	Hard hat with face shield
☐	**Modifications:** Nitrile gloves when sampling, face mask (Covid)

Table 3-4 Activity vs. Level of Protection

Activity	Level of PPE	Special Requirements
Remediation oversight and confirmation sampling	Level D or Level C	All excavations to be properly trench shored per OSHA 29 CFR 1926.650, 29 CFR 1926.651, and 29 CFR 1926.652.Personnel will not enter excavations greater than 4-feet unless properly shored or benched.

4 Air Monitoring

According to 29 CFR 1910.120(h) and Washington Administrative Code (WAC), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection required for personnel working on site. Personnel air monitoring was completed during the IAWP Phase 1, which included the construction oversight of removal and disposal of the 35,000 tons of waste material including black dross, washed oxides, bag house dust, and soil mixed with this waste. During that field effort, no action levels were exceeded. The scope for the IAWP Phase 2 includes removing similar material, though concentrations and volumes are much lower as Phase 2 removal includes residual soil that is contaminated from the source material removed during Phase 1.

Excavation and disposal activities will be similar to work that was completed during the Phase 1 activities. Thus, no additional personal air monitoring will be conducted.

Visual observations of the site are required to determine the effectiveness of engineering controls, to reevaluate levels of protection, and determine if site conditions have changed. Activities shall generate no visual dust, if visual dust is generated, work shall stop and means and methods will be addressed and modified to reduce dust generation. Modifications may include wetting material, modifying excavation rates, or modification of excavation equipment.

4.1 Respirator Cartridge Change Out

In the event of the use of respiratory protection, a workers choice, cartridges will be replaced daily during field work. For organic cartridges, these conditions may dictate that the cartridges be replaced more frequently:

- If the organic chemical's boiling point is <70°F and the concentration is greater than 200 ppm, contact the SSO to discuss cartridge replacement and options for respiratory protection.
- If physical work rate exceeds a moderate level, replace cartridges every 4 hours of work.
- If relative humidity exceeds 85%, replace cartridges every 4 hours of work.

5 Work Zones

Site control will be maintained by establishing clearly identified work zones. These will include exclusion zones, contamination reduction zones, support zones, and other work areas on site where the potential for airborne or contact exposure to hazardous substances is minimal.

5.1 Exclusion Zone

Exclusion zones will be established around each work activity (excavation or disturbance of soil, sediment, or groundwater) conducted in contaminated areas of the site. Only persons with appropriate training (40- or 24-hour Hazardous Waste Operations Training as described below in Section 8.0) and authorization from the SSO may enter exclusion zones. Traffic cones, barrier tape, and warning signs will be used, as necessary, to establish the zone boundaries.

Exclusion zones for subsurface work, including excavation, trenching, etc. will consist, at a minimum, of the entire excavation plus a 6-foot or greater buffer surrounding the excavation, as site configuration allows. This buffer may be expanded at the discretion of the SSO depending on site conditions, including weather and the results of air monitoring. Note: The buffer zone surrounding the excavation will be larger than six feet where the heavy equipment is located, as the track hoe will be located within the exclusion zone.

5.2 Contamination Reduction Zone

A contamination reduction zone will be established just outside each exclusion zone to decontaminate equipment and personnel.

This zone will be clearly delineated from the exclusion zone and support zone. The contamination reduction zone shall have boot, glove, and rain gear wash and rinse buckets, brushes, and a source of additional water (hose or water buckets) for cleaning. Care will be taken to prevent contact with used wash water. Damaged or disposable Personal Protective Equipment will be placed in plastic garbage bags for disposal as solid waste.

The exteriors of heavy equipment will be cleaned using sprayed water and brushes prior to leaving the exclusion zone to remove any loose dirt. A wheel wash will be installed in the contamination reduction zone to remove dirt from wheel treads.

5.3 Support Zone

A support zone will be established outside the contamination reduction zone to stage clean equipment, don personal protective equipment, take rest breaks, rehydrate, etc. This zone will be clearly delineated from the contamination reduction zone.

In summary, exclusion zones will be established for excavations and site work in areas of identified contamination. Given the site history, it is possible that contaminated soil (not previously identified) will be encountered. Should excavation or site work uncover soil or water with visible contamination or noticeable odor, the SSO will be notified, PPE will be upgraded as appropriate, and the work area will be monitored. It should be noted that metals contamination may not provide visible or other sensory clues. Because of this, general work procedures, such as minimizing dust generation and good personal hygiene, will be practiced.

Minimization of Contamination

To ensure effective work zone procedures, the amount of equipment and number of personnel permitted to enter contaminated areas must be minimized. Do not kneel on contaminated ground, stir up unnecessary dust, or perform any practice that increases the probability of hand-to-mouth transfer of contaminated materials. Use plastic drop cloths and equipment covers, where possible.

5.4 General Site Control Safety Procedures

- Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces. Walk around (not through) puddles and discolored surfaces. Do not kneel or set equipment on the ground. Stay away from waste drums unless it is necessary to sample or handle the drums. Protect equipment from contamination by bagging.
- Eating, drinking, and/or smoking are only permitted in designated areas in the support zone.
- Hands and face must be thoroughly washed upon leaving the CRZ.
- Beards and/or other facial hair that interferes with respirator fit will preclude admission to the exclusion zone.
- All equipment must be decontaminated or properly discarded upon exit from the exclusion zone as determined by the SSO.
- All personnel exiting the exclusion zone must go through the decontamination procedures as described in this HASP.
- PPE as described in this HASP will be required for all field personnel working on site.
- Contact lenses may be worn on the site provided safety glasses or goggles are also worn. Any exceptions to wearing of contact lenses will be specified in this HASP or through a HASP amendment.

6 Decontamination

In general, everything that enters the exclusion zone must either be decontaminated or properly discarded upon exit from the exclusion zone. All personnel, including any visitors, must enter and exit the exclusion zone through the CRZ.

Contaminated equipment and heavy equipment will be decontaminated and inspected by the equipment operator/contractor). Material that is generated by decontamination procedures will be discharged through the water treatment system, or drummed for offsite disposal is at tail-end of project completion.

6.1 Personnel Decontamination

Personnel may become contaminated in a number of ways including, not limited to:

- Contacting vapors, gases, mists, or particulates in the air
- Being splashed by materials during sampling
- Walking through puddles or on contaminated soil
- Using contaminated instruments or equipment.

Even with safeguards, personnel contamination may occur. Harmful materials can be transferred into the clean area, exposing unprotected personnel. In removing contaminated clothing, personnel may contact contaminants on clothing or inhale them. To prevent such occurrences, decontamination procedures must be developed and established before anyone enters the site and must continue throughout site operations.

Personnel decontamination procedures will be based on the contaminants of concern and the level of protection being worn by site personnel.

6.2 Sampling Equipment

Sampling devices, when used onsite, require special cleaning procedures (Table 6-1).

6.3 Disposal of Contaminated Materials

All materials and equipment used for decontamination must be disposed of properly (Table 6-1).

6.4 Emergency Decontamination

Personnel with medical problems or injuries may also require decontamination. There is the possibility that the decontamination may aggravate or cause more serious health effects. If prompt lifesaving, first aid, and medical treatment are required,

decontamination procedures will be omitted. In either case, a member of the site management team will accompany contaminated personnel to the medical facility to advise on matters involving decontamination.

6.5 Sanitizing of Personal Protective Equipment

Respirators, reusable protective clothing, and other personal articles not only must be decontaminated before being reused, but also sanitized. The insides of masks and clothing become soiled due to exhalation, body oils, and perspiration. Manufacturer's instructions should be used to sanitize the respirator masks. If practical, reusable protective clothing should be machine-washed after a thorough decontamination; otherwise, it must be cleaned by hand.

Table 6-1 Decontamination Procedures

☐	**Level C:** Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, boot cover removal, outer glove removal, suit/safety boot wash, suit/safety boot rinse, (canister or mask change), safety boot removal, splash suit removal, inner glove wash, face piece removal, inner glove removal, inner clothing removal, field wash, re-dress. **Modifications**:
☒	**Level D:** Segregated equipment drop, boot and glove wash, boot and glove rinse, or dispose of gloves. PPE shall not be shared. Each personnel to have their own, dedicated PPE (boots, safety glasses, respirators, etc.) **Modifications:** Change gloves between samples, or when soiled during non-sampling activities.
☒	**Heavy Equipment:** Decontamination: The surfaces of all heavy equipment that come into contact with soils will be cleaned prior to removal from site with power-washer or heavy brooms. The SSO is responsible for assuring decontamination activities.

7 Emergency Response/Contingency Plan

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in weather. Table 7-1 outlines the contact information for emergencies. The first two numbers should be called in the order listed for all emergencies requiring immediate assistance. The other numbers are specific to emergency type (e.g., spill, poisoning). The Project Manager and the client contact are to be notified of the incident after the emergency situation is addressed.

Table 7-1 Emergency Contacts/Telephone Numbers

1. Fire, Police, Ambulance	911 or
Capable of Transporting Contaminated Personnel?	**Yes:** ☒ **No:** ☐
2. Site Security	NONE
Hospital:	**Valley Medical Center in Renton, WA** **ER Tele: 425-690-1000**
Chemical Trauma Capabilities?	**Yes:** ☒ **No:** ☐
Decontamination Capabilities?	**Yes:** ☒ **No:** ☐
Directions from Site to Hospital:	Go east on S 202nd St, turn left (north) onto 80th Ave S, then follow as 80th Ave turns right (east) into S 200th St. Continue for 0.5-miles. Turn left (north) onto 84th Ave S (aka E Valley Hwy) and continue 1.7-miles. Turn right (east) onto S 180th St and go 0.3-miles, then turn left (north) onto Talbot Rd. Hospital and ER is the left (west). Follow signs to ER.
Note: See map for route to hospital at the end of this section. ***The route to the hospital was verified by:*** Rusty Jones Distance from the Site to the hospital is: 2.6 miles. The approximate driving time is: 9 minutes.	
Poison Control Center:	(800) 732-6985
Electric Company: No power is provided to the site	
Gas Company: Puget Sound Energy (PSE)	(888) 225-5773 or 911
Water Company: No water is provided to the site	
Airport: SeaTac	(206) 433-5217
National Response Center (for spill reporting)	(800) 424-8802
Washington Emergency Management Division (for spill reporting)	(800) 258-5990 or (800) OILS-911
Center for Disease Control	(404) 639-3311 (24-hour)
ATF (explosion information)	(202) 927-8210
Chemtrec	(800) 424-9300

CRETE Consulting Office and Project Managers	Grant Hainsworth (253) 797-6323 Jamie Stevens (206) 799-2744
CRETE Consulting Personnel Medical Consultant	UW Valley Medical Center Occupation Health and Safety
Client Contact	Kyle Siekawitch (509) 969-5667

7.1 Emergency Response Plan

7.1.1 Pre-Emergency Planning

The SSO is responsible for emergency contingency planning and as such, is responsible for:

- Posting emergency telephone numbers and route to the hospital in the field
- Conducting a weekly inventory of site emergency equipment, spill response and supplies
- Familiarizing themselves with emergency procedures for personnel injury or suspected overexposures, fires, explosions or releases
- Identifying the names of all personnel on site who are certified in CPR and first aid
- Briefing new employees on the emergency response plan before they perform fieldwork.

7.1.2 Emergency Equipment and Supplies

The following emergency equipment and supplies will be available on site during days with field sampling:

- Fire extinguishers;
- Industrial first aid kit; and
- Eye wash.

7.1.3 Emergency Recognition and Prevention

Prevention of emergencies will be aided by the effective implementation of the health and safety procedures specified in this Site-Specific Health and Safety Plan. The following hazards which could lead to emergency situations have been identified as being potentially present during the course of field activities:

- Traumatic injury from heavy equipment accidents, rusty or sharp demolition debris, and/or falling into holes or trenches; and
- Exposure to harmful chemical dusts and vapors.

7.1.4 Emergency Medical Treatment and First Aid

- Prevent further injury, perform appropriate decontamination and notify the SSO.
- Depending upon the type and severity of the injury, the SSO will call 911 for an ambulance.
- Notify CRETE personnel.
- Prepare an incident report.

7.1.5 Emergency Decontamination

Personnel will be decontaminated to the extent feasible but life saving and first aid procedures take priority over decontamination efforts. Workers shall grossly decontaminate the injured person.

7.1.6 Evacuation Routes and Procedures

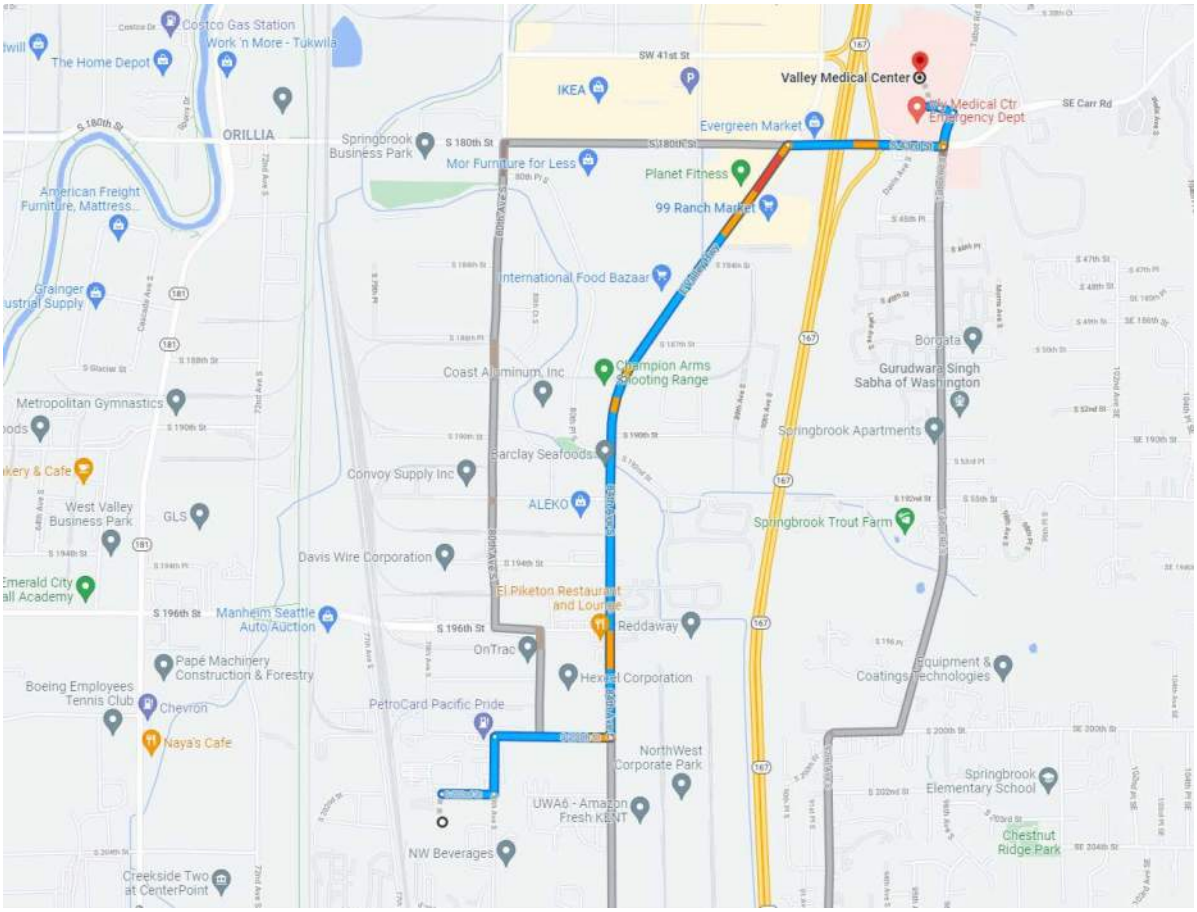
In case of emergencies, evacuation routes will be designated. Personnel will exit the site and assemble at the designated point in the support zone. The SSO will account for personnel at the on-site assembly point and notify local emergency responders. The SSO will assess the need for site evacuation based on the degree of hazard posed to personnel in the support zone.

Evacuation routes will be determined on a site-by-site basis. Elements that will be considered in the selection of the route include: wind direction, obstructions, topography, and type of emergency. Assembly Points will be determined, as needed.

7.1.7 Critique of Response and Follow-up

The Project Manager or their designee will evaluate the effectiveness of the emergency response and recommend procedures for improving emergency response to the Project CIH. Follow-up activities include notification of the CRETE Project Manager within 24 hours of the injury, investigation of cause and implementation of measures to prevent reoccurrence.

Figure 7-1 Route to Hospital



Valley Medical center in Renton. Site to Hospital
Hospital Address: 400 S 43rd St, Renton, WA 98055
Main Telephone: 425-228-3450
ER Telephone: 425-690-1000

Appendix A

Site Safety Plan Acknowledgment Form

Site Safety Plan
Acknowledgment Form

have been informed, understand, and will abide by all the procedures and protocols set forth in this Site Health and Safety Plan for the MARALCO site.

Name (Print)	Signature	Affiliation	Date

Appendix B

Visitor Sign-In Log

Visitor Sign-In Log

Client:_____ **Project Name**:_____

Location:_____ **Field Activity:**_____

Project Mgr.:_____ **Field Manager**:_____

Date	Name	Affiliation	Purpose of Visit	Site EHS Training		Do you have Level D PPE?		Time In	Time Out
				Yes	No	Yes	No		

Visitor Sign-In Log

Client:_____ **Project Name**:_____

Location:_____ **Field Activity:**_____

Project Mgr.:_____ **Field Manager**:_____

Date	Name	Affiliation	Purpose of Visit	Site EHS Training		Do you have Level D PPE?		Time In	Time Out
				Yes	No	Yes	No		

Visitor Sign-In Log

Client:_____ **Project Name**:_____

Location:_____ **Field Activity:**_____

Project Mgr.:_____ **Field Manager**:_____

Date	Name	Affiliation	Purpose of Visit	Site EHS Training		Do you have Level D PPE?		Time In	Time Out
				Yes	No	Yes	No		

Appendix C

Site Safety/Tailgate Meeting Form

Our behavior-based safety process is the key to our success!

Site Safety/Tailgate Meeting Form

Project Name:_____ **Location**:_____
Date:_____ **Time**:_____
Project Number:_____ **Instructor**:_____

Safety Topics Presented

JHA:_____

Lessons Learned:_____

General Safety Topics:_____

Name	Attendee's Signature

Our behavior-based safety process is the key to our success!

Site Safety/Tailgate Meeting Form

Project Name:_____ **Location**:_____
Date:_____ **Time**:_____
Project Number:_____ **Instructor**:_____

Safety Topics Presented

JHA:_____

Lessons Learned:_____

General Safety Topics:_____

Name	Attendee's Signature

Our behavior-based safety process is the key to our success!

Site Safety/Tailgate Meeting Form

Project Name:_____ **Location**:_____
Date:_____ **Time**:_____
Project Number:_____ **Instructor**:_____

Safety Topics Presented

JHA:_____

Lessons Learned:_____

General Safety Topics:_____

Name	Attendee's Signature

Appendix D
Notification of Access to Employee Exposure and Medical Records

Notice

To All Employees: This Notice Is to Provide Information for Compliance with 29 CFR Part 1910 Subpart C - General Safety and Health Provisions - Paragraph 1910.1020, Access to Employee Exposure and Medical Records.

(i) The existence, location, and availability of any records covered by this section is as follows:

CRETE Consulting, Inc.

16300 Christensen Rd, Ste 214,
Tukwila WA 98188
PH: (253) 797-6323

Attn: Grant Hainsworth

Grant.hainsworth@creteconsulting.com

(ii) The person responsible for maintaining and providing access to these records is CRETE's Environmental Health and Safety Manager.

(iii) Each employee has the right to access these records.

Appendix E

Material Safety Data Sheets

Safety Data Sheets

MATERIAL SAFETY DATA SHEET

LIQUINOX®

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	**LIQUINOX®**
CHEMICAL FAMILY NAME:	Detergent.
PRODUCT USE:	Critical-cleaning detergent for laboratory, healthcare and industrial applications
U.N. NUMBER:	Not Applicable
U.N. DANGEROUS GOODS CLASS:	Non-Regulated Material
SUPPLIER/MANUFACTURER'S NAME:	Alconox, Inc.
ADDRESS:	30 Glenn St., Suite 309, White Plains, NY 10603. USA
EMERGENCY PHONE:	**TOLL-FREE in USA/Canada** 800-255-3924
	International calls 813-248-0585
BUSINESS PHONE:	914-948-4040
DATE OF PREPARATION:	May 2011
DATE OF LAST REVISION:	February 2008

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a pale yellow liquid no odor. Exposure can be irritating to eyes, respiratory system and skin. It is a non-flammable liquid. The Environmental effects of this product have not been investigated.

US DOT SYMBOLS	CANADA (WHMIS) SYMBOLS	EUROPEAN and (GHS) Hazard Symbols
Non-Regulated	Not Controlled	None

Signal Word: **Caution!**

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008 Annex 1
EC# 231-791-2 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 268-356-1 This substance is not classified in the Annex I of Directive 67/548/EEC
CAS# 84133-50-6 Not Listed in EU Chemical Inventory
EC# 232-483-0 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 215-090-9 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 241-543-5 This substance is not classified in the Annex I of Directive 67/548/EEC

GHS Hazard Classification(s):
None

Hazard Statement(s):
None

Precautionary Statement(s):
P264: Wash hands thoroughly after handling
P271: Use only in well ventilated area.

Hazard Symbol(s):
Not Classified

Risk Phrases:
None

Safety Phrases:
S24/25: Avoid contact with skin and eyes

HEALTH HAZARDS OR RISKS FROM EXPOSURE:

ACUTE: Exposure to this product may cause irritation of the eyes, respiratory system and skin. Ingestion may cause gastrointestinal irritation including pain, vomiting or diarrhea.

CHRONIC: This product contains an ingredient which may be corrosive.

TARGET ORGANS: ACUTE: Eye, respiratory System, Skin CHRONIC: None Known

SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS:	CAS #	EINECS #	ICSC #	WT %	HAZARD CLASSIFICATION; RISK PHRASES
Water	7732-18-5	231-791-2	Not Listed	40 – 60%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	268-356-1	Not Listed	10 – 20%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Alcohol Ethoxylate	84133-50-6	Not Listed	Not Listed	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Coconut Diethanolamide	8051-30-7	232-483-0	Not Listed	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Xylene Sulfonate	1300-72-7	215-090-9	1514	2 – 7%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Tripotassium EDTA	17572-97-3	241-543-5	Not Listed	1 - 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Balance of other ingredients are non-hazardous or less than 1% in concentration (or 0.1% for carcinogens, reproductive toxins, or respiratory sensitizers).					

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard *JIS Z 7250: 2000*.

SECTION 4 - FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EYE CONTACT: If product enters the eyes, open eyes while under gentle running water for at least 15 minutes. Seek medical attention if irritation persists.

SKIN CONTACT: Wash skin thoroughly after handling. Seek medical attention if irritation develops and persists. Remove contaminated clothing. Launder before re-use.

INHALATION: If breathing becomes difficult, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if breathing dificulty continues.

INGESTION: If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice. Take a copy of the label and/or MSDS with the victim to the health professional.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing skin, or eye problems may be aggravated by prolonged contact.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure.

SECTION 5 - FIRE-FIGHTING MEASURES

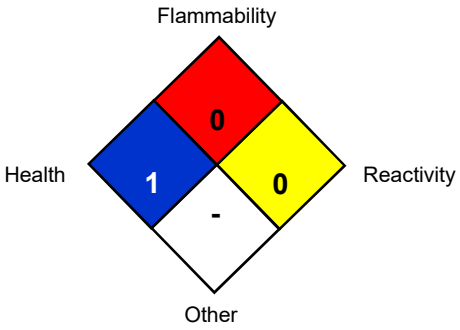
FLASH POINT: Not Flammable
AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): NA Upper (UEL): NA
FIRE EXTINGUISHING MATERIALS: As appropriate for surrounding fire. Carbon dioxide, foam, dry chemical, halon, or water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is non-flammable, however containers may rupture if exposed to heat or fire.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.
Explosion Sensitivity to Static Discharge: Not Sensitive

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

NFPA RATING SYSTEM



HMIS RATING SYSTEM

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM	
HEALTH HAZARD (BLUE)	1
FLAMMABILITY HAZARD (RED)	0
PHYSICAL HAZARD (YELLOW)	0

PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See Sect 8		See Sect 8

For Routine Industrial Use and Handling Applications

Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe * = Chronic hazard

SECTION 6 - ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Personnel should be trained for spill response operations.
SPILLS: Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Soak up with an absorbent material and place in an appropriate container for disposal. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

SECTION 7 - HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing dusts generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: Containers of this product must be properly labeled. Store containers in a cool, dry location. Keep container tightly closed when not in use. Store away from strong acids or oxidizers.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA	SWA
Water	7732-18-5	Not Listed	Not Listed	Not Listed
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	Not Listed	Not Listed	Not Listed
Alcohol Ethoxylate	84133-50-6	Not Listed	Not Listed	Not Listed
Coconut Diethanolamide	8051-30-7	Not Listed	Not Listed	Not Listed
Sodium Xylene Sulfonate	1300-72-7	Not Listed	Not Listed	Not Listed
Tripotassium EDTA	17572-97-3	Not Listed	Not Listed	Not Listed

Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Use chemical resistant gloves to prevent skin contact.. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
APPEARANCE & ODOR:	Pale yellow liquid with no odor.
ODOR THRESHOLD (PPM):	Not Available
VAPOR PRESSURE (mmHg):	17 @ 20°C (68°F)
VAPOR DENSITY (AIR=1):	>1
BY WEIGHT:	Not Available
EVAPORATION RATE (nBuAc = 1):	<1
BOILING POINT (C°):	100°C (212°F)
FREEZING POINT (C°):	Not Available
pH:	8.5
SPECIFIC GRAVITY 20°C: (WATER =1)	1.083
SOLUBILITY IN WATER (%)	Complete
COEFFICIENT OF WATER/OIL DIST.:	Not Available
VOC:	None
CHEMICAL FAMILY:	Detergent

SECTION 10 - STABILITY and REACTIVITY

STABILITY: Product is stable
DECOMPOSITION PRODUCTS: When heated to decomposition this product produces Oxides of carbon (COx), and Hydrocarbons
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong acids and strong oxidizing agents.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICITY DATA: Toxicity data is not available for mixture:

SUSPECTED CANCER AGENT: None of the ingredients are found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.
IRRITANCY OF PRODUCT: Contact with this product can be irritating to exposed skin, eyes and respiratory system.
SENSITIZATION OF PRODUCT: This product is not considered a sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: No information concerning the effects of this product and its components on the human reproductive system.

SECTION 12 - ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
ENVIRONMENTAL STABILITY: No Data available at this time.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this product's effects on plants or animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this product's effects on aquatic life.

SECTION 13 - DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

SECTION 14 - TRANSPORTATION INFORMATION

US DOT; IATA; IMO; ADR:

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.
PROPER SHIPPING NAME: Non-Regulated Material
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable.
DOT LABEL(S) REQUIRED: Not Applicable
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004): Not Applicable
MARINE POLLUTANT: None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:
This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:
This product is not classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):
This product is not classified as Dangerous Goods, by rules of IATA:

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:
This product is not classified as Dangerous Goods by the International Maritime Organization.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):
This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES REGULATIONS

SARA REPORTING REQUIREMENTS: This product is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows: None

TSCA: All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

SARA 311/312:

Acute Health: Yes Chronic Health: No Fire: No Reactivity: No

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): None

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): None of the ingredients are on the California Proposition 65 lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: All of the components of this product are on the DSL Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: This product is categorized as a Not Controlled Product, as per the Controlled Product Regulations

EUROPEAN ECONOMIC COMMUNITY INFORMATION:

EU LABELING AND CLASSIFICATION:

Classification of the mixture according to Regulation (EC) No1272/2008. See section 2 for details.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: All components of this product are listed on the AICS.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed
Australian Inventory of Chemical Substances (AICS):	Listed
Korean Existing Chemicals List (ECL):	Listed
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed
Philippines Inventory if Chemicals and Chemical Substances (PICCS):	Listed
Swiss Giftliste List of Toxic Substances:	Listed
U.S. TSCA:	Listed

SECTION 16 - OTHER INFORMATION

PREPARED BY: Paul Eigbrett Global Safety Management, 10006 Cross Creek Blvd. Suite 440, Tampa, FL 33647

Disclaimer: To the best of Alconox, Inc. knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type either express or implied are provided. The information contained herein relates only to this specific product.

ANNEX:

IDENTIFIED USES OF LIQUINOX® AND DIRECTIONS FOR USE

Used to clean: Healthcare instruments, laboratory ware, vacuum equipment, tissue culture ware, personal protective equipment, sampling apparatus, catheters, tubing, disk drives, clean rooms, medical devices, optical parts, electronic components, pharmaceutical apparatus, cosmetics manufacturing equipment, metal castings, forgings and stampings, industrial parts, pipes, tanks and reactors. Authorized by USDA for use in federally inspected meat and poultry plants. Passes inhibitory residue test for water analysis. Used for phosphate sensitive analysis ware. FDAcertified. Used to remove: Soil, grit, grime, slime, grease, oils, blood, tissue, particulates, deposits, chemical and solvents.

Surfaces cleaned: Corrosion inhibited formulation recommended for glass, metal, stainless steel, porcelain, ceramic, plastic, cement and fiberglass. Can be used on soft metals such as copper, aluminum, zinc and magnesium if rinsed promptly. Used for art restoration. Corrosion testing may be advisable.

Cleaning method: Soak, brush, sponge, cloth, ultrasonic, flow through clean-inplace. Will foam—not for spray or machine use.

Directions: Make a fresh 1% solution (2 1/2 Tbsp. per gal., 1 1/4 oz. per gal. or 10 ml per liter) in cold, warm or hot

water. If available, use warm water. Use cold water for blood stains. For difficult soils, raise water temperature and use more detergent. Clean by soak, circulate, wipe or ultrasonic method. Not for spray machines, will foam. RINSE THOROUGHLY—preferably with running water. For critical cleaning, do final or all rinsing in distilled, deionized or purified water. For food contact surfaces, rinse with potable water. Used on a wide range of glass, ceramic, plastic and metal surfaces. Corrosion testing may be advisable.

Material Safety Data Sheet: **Simple Green® All-Purpose Cleaner and Simple Green® Scrubbing Pad**
Version No. 13005-12B Date of Issue: February 2012 *ANSI-Z400.1-2003 Format*

Section 1: PRODUCT & COMPANY IDENTIFICATION

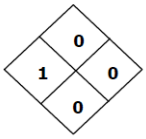
Product Name: Simple Green® All-Purpose Cleaner
Additional Names: Simple Green® Concentrated Cleaner Degreaser Deodorizer
Simple Green® Scrubbing Pad (Fluid in pad only)

Manufacturer's Part Number: **Please refer to page 4*

Company: Sunshine Makers, Inc.
15922 Pacific Coast Highway
Huntington Beach, CA 92649 USA
Telephone: 800-228-0709 ● 562-795-6000 Fax: 562-592-3830
Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-255-3924

Section 2: HAZARDS IDENTIFICATION

Emergency Overview: **CAUTION. Irritant. This is a Green colored liquid with a sassafras added odor. Scrubbing pad is a green fibrous rectangle infused with Simple Green Cleaner.**



NFPA/HMIS Rating:
Health = 1 = slight
Fire, Reactivity, and Special = 0 = minimal

Potential Health Effects

Eye Contact: Mildly irritating.
Skin Contact: No adverse effects expected under typical use conditions. Prolonged exposure may cause dryness. Chemically sensitive individuals may experience mild irritation.
Ingestion: May cause stomach or intestinal irritation if swallowed.
Inhalation: No adverse effects expected under typical use conditions. Adequate ventilation should be present for prolonged usage in small enclosed areas.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percent Range
Water	7732-18-5	≥ 78%
2-butoxyethanol	111-76-2	≤ 5%
Ethoxylated Alcohol	68439-46-3	≤ 5%
Tetrapotassium Pyrophosphate	7320-34-5	≤ 5%
Sodium Citrate	68-04-2	≤ 5%
Fragrance	Proprietary Mixture	≤ 1%
Colorant	Proprietary Mixture	≤ 1%

Section 4: FIRST AID MEASURES

If Inhaled: If adverse effect occurs, move to fresh air.
If on skin: If adverse effect occurs, rinse skin with water.
If in eyes: Flush with plenty of water. After 5 minutes of flushing, remove contact lenses, if present. Continue flushing for at least 10 more minutes. If irritation persists seek medical attention.
If ingested: Drink plenty of water to dilute.

Section 5: FIRE FIGHTING MEASURES

This formula is stable, non-flammable, and will not burn. No special procedures necessary

Flammability: Non-flammable
Flash Point: Non-flammable

Suitable Extinguishing Media: Use Dry chemical, CO2, water spray or "alcohol" foam.
Extinguishing Media to Avoid High volume jet water.
Special Exposure Hazards: In event of fire created carbon oxides, oxides of phosphorus may be formed.
Special Protective Equipment: Wear positive pressure self-contained breathing apparatus; Wear full protective clothing.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: See section 8 – personal protection.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Method for Clean Up: Dilute with water and rinse into sanitary sewer system or soak up with inert absorbent material.

Section 7: HANDLING AND STORAGE

Handling: Keep container tightly closed. Ensure adequate ventilation. Keep out of reach of children.

Storage: Keep in cool dry area.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values:	OSHA PEL	ACGIH TLV
2-butoxyethanol	TWA 50 ppm (240 mg/m^3)	20 ppm (97 mg/m^3)
Tetrapotassium Pyrophosphate		5 mg/m^3

Exposure Controls:
Eye Contact: Use protective glasses if splashing or spray-back is likely.
Respiratory: Use in well ventilated areas.
Skin Contact: Prolonged exposure or dermal sensitive individuals should use protective gloves.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Green Liquid	**Vapor Pressure:**	18 mmHg @20°C; 23.5 mmHg @26°C	
Odor:	Added Sassafras odor	**Density:**	8.5 lb/gal;	
Specific Gravity:	1.010 ± 0.010	**Water Solubility:**	100%	
pH:	9.5 ± 0.5	**VOC composite Partial Pressure:**		TBD
Boiling Point:	~210°F (98 °C)	**VOC:**	CARB Method 310	3.8%
Freezing Point:	~ 32°F (0 °C)		SCAQMD Method 313	2.8%
Nutrient Content:	Phosphorous: 0.28% Chloride: ~110 ppm	Sulfur: ~180 ppm Fluorine: ~90 ppm		

Section 10: STABILITY AND REACTIVITY

Stability:	Stable
Materials to Avoid:	None known
Hazardous Decomposition Products:	Normal products of combustion - CO, CO2; Oxides of Phosphorous may occur.

Section 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: Oral LD_{50} (rat) > 5 g/kg body weight
Dermal LD_{50} (rabbit) > 5 g/kg body weight
Toxicity calculated from ingredients using OECD SERIES ON TESTING AND ASSESSMENT Number 33

Carcinogens: No ingredients are listed by OSHA, IARC, or NTP as known or suspected carcinogens.

Section 12: ECOLOGICAL INFORMATION

Hazard to wild mammals:	Low, based on toxicology profile
Hazard to avian species:	Low, based on toxicology profile
Hazard to aquatic organisms:	Low, based on toxicology profile
Chemical Fate Information:	Readily Biodegradable per OECD 301D, Closed Bottle Test

Section 13: DISPOSAL CONSIDERATIONS

Appropriate Method for Disposal:

Unused Product:	*Dilute with water to use concentration and dispose by sanitary sewer.
Used Product:	*This product can enter into clarifiers and oil/water separators. Used product may be hazardous depending on the cleaning application and resulting contaminants.
Empty Containers:	*Triple-rinse with water and offer for recycling if available in your area. Otherwise, dispose as non-hazardous waste.

*Dispose of used or unused product, and empty containers in accordance with the local, State, Provincial, and Federal regulations for your location. Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT) / Canadian TDG: Not Regulated
IMO / IDMG: Not classified as Dangerous
ICAO/ IATA: Not classified as Dangerous
ADR/RID: Not classified as Dangerous

U.N. Number	Not Required	Proper Shipping Name:	Detergent Solution
Hazard Class:	Non-Hazardous	Marine Pollutant:	No

Section 15: REGULATORY INFORMATION

All components are listed on: EINECS, TSCA, DSL and AICS Inventory.
No components listed under: Clean Air Act Section 112; Clean Water Act 307 & 311

SARA Title III: 2-butoxyethanol is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 as Category N230 – Certain Glycol Ethers.

RCRA Status: Not a hazardous waste CERCLA Status : No components listed

State Right To Know Lists

2-butoxyethanol Illinois, Massachusetts, New Jersey, Pennsylvania, Rhode Island

WHMIS Classification – Category D, subcategory 2B, eye irritant

Name	Toxic Substances List – Schedule 1 – CEPA (Canadian Environmental Protection Act)	NPRI Inventory
2-butoxyethanol	Yes	No

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by Canada's Controlled Products Regulation.

Section 16: OTHER INFORMATION

Questions about the information found on this MSDS should be directed to:
SUNSHINE MAKERS, INC. – TECHNICAL DEPARTMENT
15922 Pacific Coast Hwy. Huntington Beach, CA 92649
Phone: 800/228-0709 [8am-5pm Pacific time, Mon-Fri] *Fax:* 562/592-3830 *Email:* infoweb@simplegreen.com

CAGE CODE 1Z575
GSA/FSS - CONTRACT NO. GS-07F-0065J
Scrubbing Pad GSA/BPA - CONTRACT NO. GS-07F-BSIMP
National Stock Numbers & Industrial Part Numbers:

	Part Number	NSN	Size
Simple Green	13012	7930-01-342-5315	24 oz spray (12/case)
	13005	7930-01-306-8369	1 Gallon (6/case)
	13006	7930-01-342-5316	5 Gallon
	13016	7930-01-342-5317	15 Gallon
	13008	7930-01-342-4145	55 Gallon
	13103	N/A	2oz samples
	13225	N/A	2.5 Gallon
	13275	N/A	275 Gallon tote
	48049	N/A	1 Gallon Conc. w/ 32oz dilution
Scrubbing Pad	10224	7930-01-346-9148	Each (24/case)

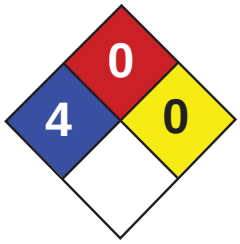
Retail Numbers:

Part Number	Size
13002	16 oz Trigger (12/case)
13005	1 Gallon (6/case)
13013	24 oz Trigger (12/case)
13014	67 oz / 2 L (6/case)
13033	32 oz Trigger (12/case)
80007	Tier display holding 13005 (36/Tier)

part number is for both industrial and retail

****International Part Numbers May Differ.**

DISCLAIMER: The information provided with this MSDS is furnished in good faith and without warranty of any kind. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers. Sunshine Makers, Inc. assumes no additional liability or responsibility resulting from the use of, or reliance on this information.



Material Safety Data Sheet
Nitric acid, 65% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Nitric acid, 65%

Catalog Codes: SLN2161

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Nitric acid, fuming

CI#: Not applicable.

Synonym: Nitric Acid, 65%

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	35
Nitric acid, fuming	7697-37-2	65

Toxicological Data on Ingredients: Nitric acid, fuming: VAPOR (LC50): Acute: 244 ppm 0.5 hours [Rat]. 344 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lungs, mucous membranes, upper respiratory

tract, skin, eyes, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of combustible materials

Explosion Hazards in Presence of Various Substances:
Explosive in presence of reducing materials, of organic materials, of metals, of alkalis. Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Flammable in presence of cellulose or other combustible materials. Phosphine, hydrogen sulfide, selenide all ignite when fuming nitric acid is dripped into gas. (Nitric Acid, fuming)

Special Remarks on Explosion Hazards:
Reacts exlposively with metallic powders, carbides, cyanides, sulfides, alkalies and turpentine. Can react explosively with many reducing agents. Arsine, phosphine, tetraborane all oxidized explosively in presence of nitric acid. Cesium and rubidium

acetylides explode in contact with nitric acid. Explosive reaction with Nitric Acid + Nitrobenzene + water. Detonation with Nitric Acid + 4-Methylcyclohexane. (Nitric acid, fuming)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Oxidizing material. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 23°C (73.4°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 2 STEL: 4 (ppm) from ACGIH (TLV) [United States] TWA: 2 STEL: 4 from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Acrid. Disagreeable and choking. (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point: 121°C (249.8°F)

Melting Point: -41.6°C (-42.9°F)

Critical Temperature: Not available.

Specific Gravity: 1.408 (Water = 1)

Vapor Pressure: 6 kPa (@ 20°C)

Vapor Density: 2.5 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.29 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in cold water, hot water. Soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:
Highly reactive with alkalis. Reactive with reducing agents, combustible materials, organic materials, metals, acids.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper. Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316), of brass.

Special Remarks on Reactivity:
A strong oxidizer. Reacts violently with alcohol, organic material, turpene, charcoal. Violent reaction with Nitric acid + Acetone and Sulfuric acid. Nitric Acid will react with water or steam to produce heat and toxic, corrosive and flammable vapors. (Nitric acid, fuming)

Special Remarks on Corrosivity:
In presence of traces of oxides, it attacks all base metals except aluminum and special chromium steels. It will attack some forms of plastics, rubber, and coatings. No corrosive effect on bronze. No corrosivity data for zinc, and steel

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:

Contains material which may cause damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth.

Other Toxic Effects on Humans:
Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals: LDL - Lowest Published Lethal Dose [Human] - Route: Oral; Dose: 430 mg/kg (Nitric acid, fuming)

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (effects on newborn and fetotoxicity) based on animal data. (Nitric acid, fuming)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Severely irritates skin. Causes skin burns and may cause deep and penetrating ulcers of the skin with a characteristic yellow to brownish discoloration. May be fatal if absorbed through skin. Eyes: Severely irritates eyes. Causes eye burns. May cause irreversible eye injury. Ingestion: May be fatal if swallowed. Causes serious gastrointestinal tract irritation or burns with nausea, vomiting, severe abdominal pain, and possible "coffee grounds" appearance of the vomitus . May cause perforation of the digestive tract. Inhalation: May be fatal if inhaled. Vapor is extremely hazardous. Vapor may cause nitrous gas poisoning. Effects may be delayed. May cause irritation of the mucous membranes and respiratory tract with burning pain in the nose and throat, coughing, sneezing, wheezing, shortness of breath and pulmonary edema. Other symptoms may include nausea, and vomiting. Chronic Potential Health Effects: Repeated inhalation may produce changes in pulmonary function and/or chronic bronchitis. It may also affect behavior (headache, dizziness, drowsiness, muscle contaction or spasticity, weakness, loss of coordinaton, mental confusion), and urinary system (kidney faillure, decreased urinary output after several hours of

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Nitric acid UNNA: 2031 PG: II

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Nitric acid, fuming Rhode Island RTK hazardous substances: Nitric acid, fuming Pennsylvania RTK: Nitric acid, fuming Florida: Nitric acid, fuming Minnesota: Nitric acid, fuming Massachusetts RTK: Nitric acid, fuming

New Jersey: Nitric acid, fuming TSCA 8(b) inventory: Water; Nitric acid, fuming SARA 302/304/311/312 extremely hazardous substances: Nitric acid, fuming SARA 313 toxic chemical notification and release reporting: Nitric acid, fuming 65% CERCLA: Hazardous substances.: Nitric acid, fuming: 1000 lbs. (453.6 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R8- Contact with combustible material may cause fire. R35- Causes severe burns. S23- Do not breathe gas/fumes/vapour/spray [***] S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36- Wear suitable protective clothing. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 10:59 AM

Last Updated: 11/01/2010 12:00 PM

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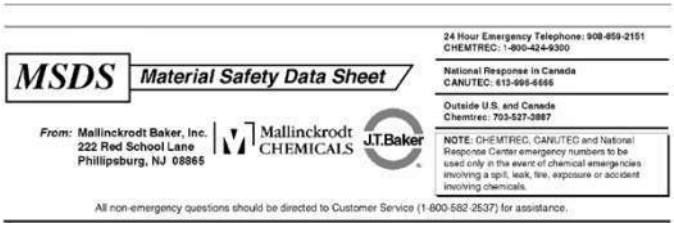
MSDS Number: **I8840** * * * * * *Effective Date:* ***08/27/04*** * * * * * *Supercedes:* ***05/07/03***



ISOPROPYL ALCOHOL (90 - 100%)

1. Product Identification

Synonyms: 2-Propanol; sec-propyl alcohol; isopropanol; sec-propanol; dimethylcarbinol
CAS No.: 67-63-0
Molecular Weight: 60.10
Chemical Formula: (CH3)2 CHOH
Product Codes:
J.T. Baker: 0562, 5082, 9037, 9080, U298
Mallinckrodt: 0562, 3027, 3031, 3032, 3035, 3037, 3043, 4359, 6569, H604, H982, V555, V566, V681

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Isopropyl Alcohol	67-63-0	90 - 100%	Yes
Water	7732-18-5	0 - 10%	No

3. Hazards Identification

Emergency Overview

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO SKIN.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 3 - Severe (Flammable)
Reactivity Rating: 2 - Moderate
Contact Rating: 3 - Severe
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:
Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness and possibly death.
Ingestion:
Can cause drowsiness, unconsciousness, and death. Gastrointestinal pain, cramps, nausea, vomiting, and diarrhea may also result. The single lethal dose for a human adult = about 250 mls (8 ounces).
Skin Contact:
May cause irritation with redness and pain. May be absorbed through the skin with possible systemic effects.
Eye Contact:
Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.
Chronic Exposure:
Chronic exposure may cause skin effects.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or impaired liver, kidney, or pulmonary function may be more susceptible to the effects of this agent.

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:

Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.
Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes. Call a physician if irritation develops.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:
Flash point: 12C (54F) CC
Autoignition temperature: 399C (750F)
Flammable limits in air % by volume:
lel: 2.0; uel: 12.7
Listed fire data is for Pure Isopropyl Alcohol.
Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with strong oxidizers may cause fire or explosion. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.
Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

J. T. Baker SOLUSORB® solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Small quantities of peroxides can form on prolonged storage. Exposure to light and/or air significantly increases the rate of peroxide formation. If evaporated to a residue, the mixture of peroxides and isopropanol may explode when exposed to heat or shock.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
For Isopropyl Alcohol (2-Propanol):
-OSHA Permissible Exposure Limit (PEL):
400 ppm (TWA)

-ACGIH Threshold Limit Value (TLV):
200 ppm (TWA), 400 ppm (STEL), A4 - not classifiable as a human carcinogen.
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Neoprene and nitrile rubber are recommended materials.
Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Clear, colorless liquid.
Odor:
Rubbing alcohol.
Solubility:
Miscible in water.
Specific Gravity:
0.79 @ 20C/4C
pH:
No information found.
% Volatiles by volume @ 21C (70F):

100
Boiling Point:
82C (180F)
Melting Point:
-89C (-128F)
Vapor Density (Air=1):
2.1
Vapor Pressure (mm Hg):
44 @ 25C (77F)
Evaporation Rate (BuAc=1):
2.83

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Heat, flame, strong oxidizers, acetaldehyde, acids, chlorine, ethylene oxide, hydrogen-palladium combination, hydrogen peroxide-sulfuric acid combination, potassium tert-butoxide, hypochlorous acid, isocyanates, nitroform, phosgene, aluminum, oleum and perchloric acid.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Oral rat LD50: 5045 mg/kg; skin rabbit LD50: 12.8 gm/kg; inhalation rat LC50: 16,000 ppm/8-hour; investigated as a tumorigen, mutagen, reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Isopropyl Alcohol (67-63-0)	No	No	3
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:
When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material may biodegrade to a moderate extent. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.
Environmental Toxicity:
The LC50/96-hour values for fish are over 100 mg/l. This material is not expected to be toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: ISOPROPANOL
Hazard Class: 3
UN/NA: UN1219
Packing Group: II
Information reported for product/size: 200L

International (Water, I.M.O.)

Proper Shipping Name: ISOPROPANOL
Hazard Class: 3
UN/NA: UN1219
Packing Group: II
Information reported for product/size: 200L

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Isopropyl Alcohol (67-63-0)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Ingredient	Korea	Canada-- DSL	Canada-- NDSL	Canada-- Phil.
Isopropyl Alcohol (67-63-0)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

Ingredient	SARA 302- RQ	SARA 302- TPQ	SARA 313- List	SARA 313- Chemical Catg.
Isopropyl Alcohol (67-63-0)	No	No	Yes	No
Water (7732-18-5)	No	No	No	No

Ingredient	CERCLA	RCRA- 261.33	TSCA- 8(d)
Isopropyl Alcohol (67-63-0)	No	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: Yes
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 2[S]2
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **1** Flammability: **3** Reactivity: **0**
Label Hazard Warning:
WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO SKIN.
Label Precautions:
Keep away from heat, sparks and flame.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Avoid breathing vapor or mist.
Avoid contact with eyes, skin and clothing.
Label First Aid:
If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 16.
Disclaimer:
****
Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
****
Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

CAMEO Chemicals

Print

Chemical Datasheet

ALUMINUM DROSS

Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	USCG CHRIS Code
none	3170	Dangerous When Wet	none

NIOSH Pocket Guide
none

International Chem Safety Card
none

NFPA 704
data unavailable

General Description

Gray to black granules with an odor of ammonia. Contains some aluminum, but consists principally of byproducts obtained during the refinement of aluminum. Contact with solid or with vapors arising from the solid can irritate the eyes severely.

Hazards

Reactivity Alerts

none

Air & Water Reactions

Reacts slowly with water to produce methane, ammonia, and hydrogen.

Fire Hazard

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

Produce flammable gases on contact with water. May ignite on contact with water or moist air. Some react vigorously or explosively on contact with water. May be ignited by heat, sparks or flames. May re-ignite after fire is extinguished. Some are transported in highly flammable liquids. Runoff may create fire or explosion hazard. (ERG, 2016)

Health Hazard

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. May produce corrosive solutions on contact with water. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution. (ERG, 2016)

Reactivity Profile

ALUMINUM DROSS contains some aluminum, but consists principally of byproducts obtained during the refinement of aluminum.

Belongs to the Following Reactive Group(s)

- Metals, Elemental and Powder, Active

Potentially Incompatible Absorbents

No information available.

Response Recommendations

Isolation and Evacuation

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

Firefighting

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

DO NOT USE WATER OR FOAM.

SMALL FIRE: Dry chemical, soda ash, lime or sand.

LARGE FIRE: DRY sand, dry chemical, soda ash or lime or withdraw from area and let fire burn. Move containers from fire area if you can do it without risk.

FIRE INVOLVING METALS OR POWDERS (ALUMINUM, LITHIUM, MAGNESIUM, ETC.): Use dry chemical, DRY sand, sodium chloride powder, graphite powder or Met-L-X® powder; in addition, for Lithium you may use Lith-X® powder or copper powder. Also, see ERG Guide 170.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

Non-Fire Response

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Stop leak if you can do it without risk. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. DO NOT GET WATER on spilled substance or inside containers.

SMALL SPILL: Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Dike for later disposal; do not apply water unless directed to do so.

POWDER SPILL: Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST. (ERG, 2016)

Protective Clothing

Excerpt from GUIDE 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. (ERG, 2016)

DuPont Tychem® Suit Fabrics

No information available.

First Aid

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]:

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with substance, wipe from skin immediately; flush skin or eyes with running water for at least 20 minutes. Keep victim calm and warm. (ERG, 2016)

Physical Properties

Chemical Formula: data unavailable

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: data unavailable

Melting Point: data unavailable

Vapor Pressure: data unavailable

Vapor Density (Relative to Air): data unavailable

Specific Gravity: data unavailable

Boiling Point: data unavailable

Molecular Weight: data unavailable

Water Solubility: data unavailable

Ionization Potential: data unavailable

IDLH: data unavailable

AEGLs (Acute Exposure Guideline Levels)

No AEGL information available.

ERPGs (Emergency Response Planning Guidelines)

No ERPG information available.

PACs (Protective Action Criteria)

No PAC information available.

Regulatory Information

EPA Consolidated List of Lists

No regulatory information available.

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

No regulatory information available.

OSHA Process Safety Management (PSM) Standard List

No regulatory information available.

Alternate Chemical Names

- ALUMINUM DROSS
- ALUMINUM REMELTING BY-PRODUCTS
- ALUMINUM SMELTING BY-PRODUCTS

CAMEO Chemicals

Print

Chemical Datasheet

ANTIMONY POWDER

Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	USCG CHRIS Code
7440-36-0	2871	Poison	none

NIOSH Pocket Guide
Antimony

International Chem Safety Card
ANTIMONY

NFPA 704

data unavailable

General Description

A silvery or gray solid in the form of dust. Denser than water and insoluble in water. Toxic by inhalation and by ingestion. May burn and emit toxic fumes if heated or exposed to flames. Used to make electric storage batteries and semiconductors.

Hazards

Reactivity Alerts

⚠ Strong Reducing Agent

Air & Water Reactions

Insoluble in water.

Fire Hazard

Excerpt from ERG Guide 170 [Metals (Powders, Dusts, Shavings, Borings, Turnings, or Cuttings, etc.)]:

May react violently or explosively on contact with water. Some are transported in flammable liquids. May be ignited by friction, heat, sparks or flames. Some of these materials will burn with intense heat. Dusts or fumes may form explosive mixtures in air. Containers may explode when heated. May re-ignite after fire is extinguished. (ERG, 2016)

Health Hazard

Excerpt from ERG Guide 170 [Metals (Powders, Dusts, Shavings, Borings, Turnings, or Cuttings, etc.)]:

Oxides from metallic fires are a severe health hazard. Inhalation or contact with substance or decomposition products may cause severe injury or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

Reactivity Profile

ANTIMONY is spontaneously flammable in fluorine, chlorine, and bromine. With iodine, the reaction produces heat, which can cause flame or even an explosion if the quantities are great enough [Mellor 9:379 1946-47]. Even at 10° C. bromine trifluoride reacts with antimony incandescently. Bromine trifluoride reacts similarly with arsenic, boron, bromine, iodine, phosphorus, and sulfur [Mellor 2:113 1946-47]. Bromoazide explodes on contact with antimony, arsenic, phosphorus, silver foil, or sodium. It is very shock sensitive. Explosions of chloric acid have been due to the formation of unstable compounds with antimony, bismuth, ammonia, and organic matter [Chem. Abst. 46:2805e 1952]. The reaction of finely divided antimony and nitric acid can be violent [Pascal 10:504 1931-34]. Powdered antimony mixed with potassium nitrate explodes when heated [Mellor 9:282 1946-47]. When antimony or arsenic and solid potassium permanganate are ground together, the metals ignite [Mellor 12:322 1946-47]. Sodium peroxide oxidizes antimony, arsenic, copper, potassium, tin, and zinc with incandescence [Mellor 2:490-93 1946-47].

Belongs to the Following Reactive Group(s)

- Metals, Elemental and Powder, Active

Potentially Incompatible Absorbents

No information available.

Response Recommendations

Isolation and Evacuation

Excerpt from ERG Guide 170 [Metals (Powders, Dusts, Shavings, Borings, Turnings, or Cuttings, etc.)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

LARGE SPILL: Consider initial downwind evacuation for at least 50 meters (160 feet).

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

Firefighting

Excerpt from ERG Guide 170 [Metals (Powders, Dusts, Shavings, Borings, Turnings, or Cuttings, etc.)]:

DO NOT USE WATER, FOAM OR CO2. Dousing metallic fires with water will generate hydrogen gas, an extremely dangerous explosion hazard, particularly if fire is in a confined environment (i.e., building, cargo hold, etc.). Use DRY sand, graphite powder, dry sodium chloride-based extinguishers, G-1® or Met-L-X® powder. Confining and smothering metal fires is preferable rather than applying water. Move containers from fire area if you can do it without risk.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: If impossible to extinguish, protect surroundings and allow fire to burn itself out. (ERG, 2016)

Non-Fire Response

Excerpt from ERG Guide 170 [Metals (Powders, Dusts, Shavings, Borings, Turnings, or Cuttings, etc.)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. (ERG, 2016)

Protective Clothing

Skin: Wear appropriate personal protective clothing to prevent skin contact.

Eyes: Wear appropriate eye protection to prevent eye contact.

Wash skin: The worker should immediately wash the skin when it becomes contaminated.

Remove: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

Change: Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premise. (NIOSH, 2016)

DuPont Tychem® Suit Fabrics

No information available.

First Aid

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: Some heavy metals are VERY TOXIC POISONS, especially if their salts are very soluble in water (e.g., lead, chromium, mercury, bismuth, osmium, and arsenic). IMMEDIATELY call a hospital or poison control center and locate activated charcoal, egg whites, or milk in case the medical advisor recommends administering one of them. Also locate Ipecac syrup or a glass of salt water in case the medical advisor recommends inducing vomiting. Usually, this is NOT RECOMMENDED outside of a physician's care. If advice from a physician is not readily available and the victim is conscious and not convulsing, give the victim a glass of activated charcoal slurry in water or, if this is not available, a glass of milk, or beaten egg whites and IMMEDIATELY transport victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, assure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. (NTP, 1992)

Physical Properties

Chemical Formula: Sb

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: data unavailable

Melting Point: 1167.3 ° F (NTP, 1992)

Vapor Pressure: 1 mm Hg at 1627 ° F (NTP, 1992)

Vapor Density (Relative to Air): data unavailable

Specific Gravity: 6.684 at 77 ° F (NTP, 1992)

Boiling Point: 3182 ° F at 760 mm Hg (NTP, 1992)

Molecular Weight: 121.75 (NTP, 1992)

Water Solubility: Insoluble (NIOSH, 2016)

Ionization Potential: data unavailable

IDLH: 50 mg/m3 (as Sb) (NIOSH, 2016)

AEGLs (Acute Exposure Guideline Levels)

No AEGL information available.

ERPGs (Emergency Response Planning Guidelines)

No ERPG information available.

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Antimony (7440-36-0)	1.5 mg/m3	13 mg/m3	80 mg/m3

(DOE, 2016)

Regulatory Information

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Antimony	7440-36-0			5000 pounds	313		
Antimony Compounds	N010			&	313		

& indicates that no RQ is assigned to this generic or broad class, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985).

(EPA List of Lists, 2015)

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

No regulatory information available.

OSHA Process Safety Management (PSM) Standard List

No regulatory information available.

Alternate Chemical Names

- ANTIMONY
- ANTIMONY BLACK
- ANTIMONY ELEMENT
- ANTIMONY METAL
- ANTIMONY POWDER
- ANTIMONY, REGULUS
- C.I. 77050
- STIBIUM

Appendix F

Job Hazard Analysis Forms

Job Hazard Analysis

JHA Type: ☒ Investigation ☐ O&M ☐ Office ☐ Construction	☒ New ☐ Revised	Date: 2/15/2022
Office: Tukwila Client: Bridge	Location: Former Maralco Aluminum Property, 7730 South 202nd Street, Kent, WA	
Work Type: Remedial Investigation	Work Activity: Site Inspection, Investigation, Sampling	

Personal Protective Equipment (PPE): Minimum PPE is Level D including: Hard hat, safety glasses or goggles, steel-toed boots, high visibility safety vest, hearing protection as needed, and gloves as needed (type dependent on job-specific requirements).

Additional PPE may be required in any site-specific Health & Safety Plan (HASP) available. Also refer to the HASP for air monitoring and emergency procedures.

Development Team	Position/Title	Reviewed By	Position/Title	Date
Rusty Jones	Project Geologist	Jamie Stevens	Senior Engineer	2/15/22

❶ Job Steps	❷ Potential Hazard	❸ Critical Actions
1. All Onsite Activities	Slips/Trips/Falls Heat/Cold Stress Biological Hazards	• Keep all areas free of excess materials and debris and clear all walking paths. • Monitor onsite workers for signs of heat/cold stress and ensure that necessary breaks are taken. • Use insect repellant and check areas for signs of snakes, spiders, poisonous plants, ticks and mosquitoes • Maintain a clear line of sight.
2. Utility Locate	Explosion, electrocution, injury, death or property damage	• Contact public utility locate and have utilities marked out around the site. • Oversee a private onsite utility locate. • Review locations against construction drawings and known utilities • If necessary, clear upper eight feet of intended drilling location with an air/knife/vacuum truck
3. Equipment Inspections	Leaks, defective or damaged parts, slip/trip/fall hazards, fuel/oil spills, fire hazards, pinch points	• Conduct thorough inspections of all equipment at the beginning of each day and throughout the day, as appropriate. • Check for leaking hoses or fittings, loose connections, functional controls, functional emergency shutoff and damaged equipment • Identify pinch points • Check that a spill kit is available for use on site in the event of a spill or that secondary containment is provided. • Clear working areas of all unnecessary equipment.

4. Equipment Set Up	Flying debris, pinch points	• Identify pinch points • Use a spotter to locate drill rig • Delineate work area with delineators or equivalent • Establish a support zone and set up sampling equipment outside of drill rig work zone • Use designated hand signals to approach drill crew • Engage outriggers • Lower drill rig derrick prior to moving the rig
5. Concrete Coring (if necessary)	Sharp objects, rotating parts, electric tools and power equipment, hot objects	• Buddy system lifting heavy objects (drill press). • Drill in marked, approved (utility and rebar cleared) areas only. • Anchor/bolt/clamp drill machine to ground or other secure objects to prevent movement while in use. • Keep hands and feet away from the rotating drill bit at all times. Avoid loose fitting clothes around powered machine. • Use water or non-toxic, approved coolant to cool drill bits, parts, and coring surface, vacuuming/recovering the coolant during and after use. • Wear hearing protection as needed in proximity to loud equipment.
6. Drilling Operation	Flying debris, pinch points, back strain, cross-contamination, struck by drill rig derrick, chemical exposure, clothing caught in rotating equipment, hearing loss	• Keep hands and feet away from the drill stem while in motion • Wear all appropriate PPE (incl. hearing protection) • Decontamination all equipment prior to use. • Avoid lifting heavy equipment and use the buddy system for heavy objects • Assure that the drill rig derrick is secured • Make sure all guards are in place while drilling operations are underway. • Do not wear loose fitting clothes or jewelry
7. Collecting Soil and/or Samples	Pinch points, back strain, knee strain, chemical exposure	• Identify pinch points • Wear all appropriate PPE • Place soil core samples on an elevated surface (portable table) to avoid bending. • Keep hands clear while core samples are removed from the drill stem • Sample containers may be glass and can break if handled roughly. Look into coolers before reaching into coolers in case broken glass. • Sample jars may contain acid preservatives. Wear nitrile gloves and safety glasses and check containers lids frequently.

8. Monitoring Well Construction	Back strain, pinch points, chemical exposure, hearing loss	• Identify pinch points • Wear all appropriate PPE • Use proper lifting technique and avoid lifting more than one bag of sand or bentonite at a time • Avoid bending while pouring sand pack or bentonite seal • Keep hands and feet clear as drill stem is raised out of the borehole
9. Well Box Construction	Back strain, knee strain, vehicle hazards	• Delineate work area with delineators or equivalent so you can be seen when vehicles or equipment are being moved. • Avoid lifting heavy objects without assistance • Avoid bending while laying the concrete • Wear knee pads when kneeling.
10. Backfilling Soil Borings	Back strain	• When soil borings are not completed as monitoring wells, borings must be backfilled with bentonite. • Avoid lifting more than one bag of bentonite at a time • Take breaks as necessary.
11. Equipment Decontamination	Cross-contamination, chemical exposure, back strain	• Use Alconox or Liquinox to decontaminate all equipment with potential to contact soil or groundwater • Ask for help when moving heavy or awkward equipment. • Wear all appropriate PPE
12. Debris and Waste Management	Spills, chemical exposure, regulatory infractions, back strain, pinch points	• Ensure that all soil cuttings, decontamination water and purge water are properly contained and labeled • Use a drum dolly or lift to move any drums onsite. • Clear a path before moving drums • Prepare a bill of lading for all waste to be moved from site.
13. Demobilization	Chemical exposure, back strain, pinch points	• Avoid lifting heavy or awkward objects without help. • Wear all appropriate PPE • Ensure that all equipment has been decontamination prior to repacking. • Ensure that all equipment is securely put away and tied down.

Appendix D

QAPP

INTERIM ACTION WORK PLAN
PHASE 2 REMOVAL ACTION

APPENDIX D: QUALITY ASSURANCE PROJECT PLAN

Maralco Site
7730 South 202nd Street, Kent WA

Agreed Order No. DE 22343
Facility Site Identification No. 2067
Cleanup Site Identification No. 5055

September 5, 2024

Prepared for:

BRIDGE

INTERIM ACTION WORK PLAN
PHASE 2 REMOVAL ACTION

APPENDIX D: QUALITY ASSURANCE PROJECT PLAN

Maralco Site
7730 South 202nd Street, Kent WA

September 5, 2024

Prepared by:

CRETE
CONSULTING, INC.

Title Page with Approvals/Distribution List

Interim Action Work Plan – Phase 2 Removal Action
Attachment E: Quality Assurance Project Plan
7730 202nd Street, LLC (Bridge)
Maralco Site – 7730 South 202nd Street, Kent WA
September 5, 2024

Project Manager _____ 9/5/2024
Grant Hainsworth, CRETE — Date

Quality Assurance Officer _____ 9/5/2024
Jamie C. Stevens, CRETE — Date

Ecology Project Manager _____ 12/30/2024
Tena Seeds, Ecology — Date

Bridge Project Manager _____ 9/5/2024
Nick Siegel, 7730 202nd Street, LLC — Date

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Appendix A Standard Operating Procedures and Field Forms

Acronyms and Abbreviations

COI	constituent of interest
CLP	Contract Laboratory Program
cPAH	carcinogenic polyaromatic hydrocarbon
DQO	data quality objective
EDD	electronic data deliverable
EPA	United States Environmental Protection Agency
IAWP	Interim Action Work Plan
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
MDL	method detection limit
MRL	method reporting limit
MS/MSD	matrix spike/matrix spike duplicate
PARCC	precision, accuracy, representativeness, comparability, and completeness
Site	Maralco Site
PDF	portable document format
Phase 2	Phase 2 Removal Action
PQL	practical quantitation limit
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RIWP	Remedial Investigation Work Plan
RPD	relative percent difference
WAC	Washington Administrative Code

1 Introduction

1.1 Background

This Quality Assurance Project Plan (QAPP) accompanies the Interim Action Work Plan (IAWP) Phase 2 Removal Action for the Maralco Site (Site) located at 7730 South 202nd Street in Kent, Washington (King County Parcel Number 6315000300).

This QAPP describes quality assurance/quality control (QA/QC) procedures associated with collecting, analyzing, validating, and using soil confirmation data identified in the IAWP. This QAPP uses Ecology's Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, December 2016, Publication No. 04-03-030 (Ecology 2016b).

The history, constituents of interest (COIs), remediation levels, and other background information for the Site are described in the Interim Action Work Plan – Phase 2 Removal Action (CRETE 2024).

1.2 Project Description

This QAPP pertains to the following interim action tasks described in the IAWP (where the goals and objectives of this work are defined):

- Fieldwork
- Laboratory analyses
- Data validation and management
- Data analysis and report preparation.

Fieldwork- Soil Sampling

Soil samples will be collected in accordance with the procedures outlined in Section 3 and analyzed for the compounds listed in Table 2. This table also includes reporting limits and analysis methods.

Laboratory Analyses

Analyses will be completed using the laboratory methods listed in Table 2.

Level 2B laboratory data reports will be provided in portable document format (PDF), and electronic data deliverables (EDDs) will be provided in a text or Microsoft Excel file format suitable for import into the Ecology Environmental Information Management System (EIM) for soil samples.

Data Verification and Management

Data verification will be completed by the Quality Assurance Officer for data generated in the field and laboratory prior to database import.

The accuracy and completeness of the final database will be verified by the Quality Assurance Officer. Following verification, data collected during the interim action will be uploaded to Ecology's EIM database. Stockpile samples collected for waste disposal characterization profiling purposes will not be submitted to the EIM database.

Data Analysis and Report Preparation

The data collected during the Phase 2 interim action will be evaluated for compliance with the proposed remediation levels. The results will be documented in the Phase 2 Interim Action Completion Report.

1.3 Roles and Schedule

1.3.1 Roles and Responsibilities

Roles and responsibilities are defined in Table 1.

Friedman & Bruya will perform the chemical analyses of the soil samples collected by CRETE Consulting, Inc.

1.3.2 Schedule

This interim action is expected to be implemented in the fall of 2024 during Property redevelopment activities. The schedule will be based on approval of the IAWP by Ecology.

Samples will be delivered to the laboratory within applicable holding times and within 24 hours of collection time, when possible. Samples will be delivered to the laboratory by field personnel or arranged for pickup by laboratory couriers. Chain-of-custody procedures will be maintained during transit to the laboratory. Sample turnaround times will be determined at the time of sampling and may vary between 24 hours and 2 weeks depending on construction sequencing and schedule.

Data verification and validation will be completed prior to entry into the project database.

Data will be uploaded to the Ecology EIM database when the completion report is submitted to Ecology.

2 Quality Objectives

The overall data quality objective for this project is the collection of representative data of known and acceptable quality. The QA procedures and measurements that will be used for this project are based on EPA guidance (EPA 2020). Parameters related to precision, accuracy or bias, representativeness, completeness, and comparability (PARCC) will be used to assess the quality of the data (Table 3).

2.1 Precision

Precision is a measure of how closely one result matches another result expected to have the same value. Field precision will be assessed by collecting one duplicate sample for every ten field samples. Field precision is determined by the relative percent difference (RPD) between a sample and its duplicate. However, results from the analysis of a duplicate sample also test laboratory precision. Therefore, the RPD between the sample and the field replicate provides an indication of both the field and laboratory precision. The tolerance limit for percent differences between field duplicates will be $\pm$ 50 percent for soil. If the RPDs exceed these limits, a replicate sample may be run to verify laboratory precision. If any RPD exceedance is linked to field sampling, the Field Manager will recheck field sampling procedures and identify the problem. Resampling and analysis may be required.

Laboratory precision can be measured through the evaluation of laboratory control samples/duplicates (LCS/ LCSD). The laboratory will perform the analysis of one set of LCS/LCSD samples for every 20 samples. Laboratory precision will be evaluated by the RPD for each analyte between LCS/LCSD samples.

$$RPD = \frac{ABS(R1-R2)}{(R1+R2)/2} \times 100$$

Where:
ABS = absolute value
R1 = Sample result
R2 = Duplicate sample result.

The tolerance limit for percent differences between laboratory duplicates will be $\pm$ 25 percent for soil samples. If the precision values are outside this limit, the laboratory will recheck the calculations and/or identify the problem. Reanalysis may be required.

2.2 Accuracy

Accuracy is an expression of the degree to which a measured or computed value represents the true value. Accuracy may be expressed as a percentage of the true or reference value for reference material or as spike recovery from matrix spike/matrix spike duplicate (MS/MSD)

samples. The RPD between the MS and MSD is used to evaluate laboratory precision. The following equations are used to express accuracy:

- For reference materials:
  - Percent of true value = (measured value/true value) x 100
- For spiked samples:
  - Percent recovery = ([SQ – NQ]/S) x 100

    SQ = quantity of spike or surrogate found in sample
    NQ = quantity found in native (unspiked) sample
    S = quantity of spike or surrogate added to native sample

The performance of the method will be monitored using surrogate compounds or elements. Surrogate standards are added to all samples, method blanks, matrix spikes, and calibration standards. Acceptance criteria for method blanks and matrix spikes are +/- 25% and for laboratory control samples +/- 20%.

2.3 Sensitivity

Laboratory method reporting limits (MRL) are listed in Table 2. All MRLs are below remediation levels; otherwise, remediation levels derived in the IAWP were set to the practical quantitation limit, which is identical to the MRL for this project.

2.4 Representativeness

Representativeness is the degree to which data from the project accurately represent a particular characteristic of the environmental matrix which is being tested. Representativeness of samples is achieved by adherence to standard field sampling protocols and standard laboratory protocols. Representativeness is achieved through following of the sampling plan design, sampling techniques, and sample handling protocols.

2.5 Comparability

Comparability is the qualitative similarity of one dataset to another (i.e., the extent to which different datasets can be combined for use). Comparability will be addressed through the use of field and laboratory methods that are consistent with methods and procedures recommended by Ecology and that are commonly used for soil studies.

2.6 Completeness

Completeness is a measure of the amount of data that is determined to be valid in proportion to the amount of data collected. Completeness will be calculated as follows:

Completeness =
(number of valid measurements/ total number of data points planned) x 100

The data quality objective (DQO) for completeness for all analytes is 100%. Data that have been qualified as estimated (J qualified) will be considered valid for the purpose of assessing completeness. Data that have been qualified as rejected will not be considered valid for the purpose of assessing completeness. Results will be considered valid if all the precision and accuracy targets are met.

3 Sampling Process Design and Sampling Procedures

The sampling program addressed in this QAPP is to:

- Collect soil samples for performance and compliance monitoring (3.1)
- Collect soil samples for disposal characterization, if needed (3.1).

Performance samples will be collected at locations defined in the IAWP. Waste characterization samples may be collected prior to excavation from select locations within the planned removal areas, or from stockpiled soil removed during excavation. Standard operating procedures (SOPs) are included in Appendix A.

3.1 Soil Sample Collection

Surface soil grab samples will be collected with a handheld tool, such as a trowel or a shovel, to collect surficial soil (0 to 1.0 ft bgs) into a stainless steel bowl or a disposable sample container. Stainless steel bowls and reusable handheld tools will be decontaminated prior to each use and between samples (see Section 3.3). Sample collection is planned to be performed using a new disposable trowel for each soil sample.

Additional soil samples may be collected for disposal characterization if required by the landfill. Samples would be collected prior to starting removal activities and would include surface grab samples collected as described above. If samples are collected from stockpiles, grab samples will be collected as described above, but collected from a depth of at least 6 to 12 inches beneath the surface of the pile consistent with Ecology guidance (Ecology 2016a).

Sample containers for all analyses will be filled directly from the disposable trowel using a gloved hand. Gloves will be changed between each sample. If used, stainless steel spoons/tools will be decontaminated prior to each use (and between samples). Sample containers will be clearly labeled with sample ID, collection date and time, and project name, and then placed in an iced cooler for delivery to the laboratory within 24 hours of sample collection. Chain of custody will be maintained. The sample ID will include the removal subarea number and the grid cell number as described in Section 3.4.

3.2 Sampling Equipment

Field equipment and supplies include sampling equipment (e.g., bowls, tape measures), utensils (e.g., spoons), decontamination supplies, sample containers, coolers, log books and forms, personal protection equipment, and personal gear. Protective wear (e.g., hard hats, gloves) are described in the Health and Safety Plan. Sample containers, coolers, and packaging material will be supplied by the analytical laboratory.

3.3 Decontamination

If used, stainless-steel sampling bowls and reusable handheld tools/equipment will be washed with Liquinox™ detergent and rinsed with distilled water prior to use and between sampling stations. The following decontamination steps will be performed on stainless-steel bowls and spoons and other handheld sample collection tools prior to use at each station:

- Wash with Liquinox™
- Double rinse with distilled/deionized water
- Final rinse with distilled/deionized water.

If a residual material remains on the sampling equipment or is difficult to remove using the standard decontaminations procedures above, a hexane rinse may be added, followed by a final rinse with distilled/deionized water. Sample equipment will be kept wrapped in aluminum foil until time for use. To minimize sample cross-contamination, disposable gloves will be replaced between samples. If any equipment decontamination occurs, an equipment blank will be collected by pouring distilled water over the equipment and collecting in a set of the same sample containers as those used for the environmental samples the equipment is used to collect.

Gloves will be changed between each sample.

Rinse water will be disposed of with the contaminated excavated soil.

3.4 Sample Nomenclature

All samples will be assigned a unique sample identification name. Sample names will include the sampling area and grid cell number. Example sample identification numbers include:

- CS-A1-10 = confirmation soil sample from Area 1, grid cell 10.
- CS-A1-10B = confirmation soil sample from Area 1, grid cell 10, second sample (represents an area with additional excavation).
- Duplicates shall not include information linking the parent sample to the duplicate. Example: Dup-01-0624.
- Equipment Rinsate Blanks are not anticipated because dedicated sampling equipment will be used, but if other blanks are collected, they shall include an identification acronym followed by the date. Example: Blank-01-0624 or MSD-01-0624.

All sample identification names will be clearly labeled on sample jars and recorded on the associated field forms and tracking sheets (such as chain-of-custodies).

3.5 Sampling Containers

Requirements for sample containers and storage conditions are provided in Table 2. All sample containers will have screw-type lids so that they are adequately sealed. Lids of the glass containers will have Teflon™ inserts to prevent sample reaction with the plastic lid and to improve the quality of the seal. Commercially available, pre-cleaned jars will be used, and the laboratory will maintain a record of certification from the suppliers. The container shipment documentation will record batch numbers for the bottles. With this documentation, containers can be traced to the supplier, and bottle rinse blank results can be reviewed.

Sampling containers will be filled to minimize head space, and will be appropriately labeled and stored prior to shipment or delivery to the laboratory. Samples must be packed to prevent damage to the sample containers and labeled to allow sample identification. All samples must be packaged so that they do not leak, break, vaporize or cause cross-contamination of other samples. Each individual sample must be properly labeled and identified. When refrigeration is required for sample preservation, samples must be kept cool, by means of ice packs or double-bagged ice in coolers, during the time between collection and final packaging.

3.6 Field Logs

All field activities and observations will be noted on weatherproof paper at the time they occur. The field logs will be compiled in a binder (or a bound notebook) in the chronological order they were completed. A blank field log (also called a daily report) is included Appendix A. Information will include personnel, date, time, station designation, sampler, types and number of samples collected, photographs taken, weather conditions, health and safety meetings conducted (tailgate meeting), and general observations. Any changes that occur at the site (e.g., personnel, responsibilities, deviations from the IAWP) and the reasons for these changes will be documented in the field log. It will also identify onsite visitors observing the sampling. The Field Manager is responsible for ensuring that the field logs are correct.

All field activities and observations will be noted during fieldwork. The descriptions will be clearly written with enough detail so that participants can reconstruct events later, if necessary. Requirements for entries include:

- Field logs will be compiled in chronological order in a 3-ring binder, with the date and observer clearly marked on all field forms and note sheets.
- Entries will be made legibly with black (or dark) waterproof ink or pencil.
- Unbiased, accurate language will be used.
- Entries will be made while activities are in progress or as soon afterward as possible (the date and time that the notation is made should be noted, as well as the time of the observation itself).
- Each consecutive day's first entry will be made on a new, blank page.

- The date and time, based on a 24-hour (military) clock (e.g., 0900 for 9 a.m. and 2100 for 9 p.m.), will appear on each page.
- When the field activity is complete, the field binder will be physically entered into the project file and the pages will be scanned to a PDF file and saved in the electronic project library. Scanning of sheets may also occur after each day's field activities.
- The person recording the information must initial and date each sheet. If more than one individual makes entries on the same sheet, each recorder must initial and date each entry. The bottom of the page must be signed and dated by the individual who makes the last entry.
- The Field Manager, after reading the day's entries, also must sign and date the last page of each daily entry.
- Corrections will be made by drawing a single line through the original entry allowing the original entry to be read. The corrected entry will be written alongside the original. Corrections will be initialed, dated, and explained.

3.7 Chain-of-Custody Procedures

All samples must be clearly identified immediately upon collection. Each sample container label will list:

- Client and project name
- A unique sample description/sample ID
- Sample collection date and time.

Additionally, the container's label may include:

- Sampler's name or initials
- Preservative, if applicable
- Analyses to be performed.

Chain-of-custody procedures will be used to document sample possession from the time of collection, through analysis, to disposal. Chain-of-custody forms (typically provided by the laboratory, a blank one is included in Appendix A) will document transfers of sample custody. A sample is considered to be under custody if it is in one's possession, view, or in a designated secure area. One set of chain-of-custody forms will be used per laboratory shipment. The chain-of-custody record will include, at a minimum, the following information:

- Client and project name
- Sample collector's name
- Sampler's company mailing address and telephone number
- Designated recipient of data (name, email, and telephone number)
- Analytical laboratory's name and city
- Description of each sample (i.e., unique identifier and matrix)
- Date and time of collection

- Quantity of each sample or number of containers
- Type of analysis required
- Any unique features of analysis, such as lower reporting limits
- Any requests to hold/archive samples
- Addition of preservative, if applicable
- Requested turn-around times
- Date and method of shipment.

When transferring custody, both the staff relinquishing custody of samples and the staff receiving custody of samples will sign, date, and note the time on the form. Samples to be analyzed by Friedman & Bruya Laboratory will not be shipped, but will be delivered by project personnel or a laboratory courier at the end of each sampling day. If samples are to be analyzed by other laboratories, they will either be delivered or shipped, depending on the location. All samples will be stored appropriately by the laboratory.

4 Quality Control

4.1 Laboratory Quality Control

Only laboratories accredited in accordance with WAC 173-50, Accreditation of Environmental Laboratories will be used for this project. EPA Contract Laboratory Program (CLP) QA/QC procedures or similar efforts will be used for the analyses. Internal quality control procedures are used to produce consistently high-quality data. A routine QC protocol is an essential part of the analytical process. The minimum requirements for each analytical run are described here. Additional description of laboratory QA/QC procedures can be found in the laboratory's QA manual. A project narrative detailing analytical results must accompany all data packages submitted by the laboratory.

Preparation batches have a maximum of 20 field samples of the same matrix. QA/QC samples processed with each batch are:

- **One method blank**. The method blank is used to assess the preparation batch for possible contamination during the preparation and processing steps. It is processed along with and under the same conditions as the environmental samples. Concentrations of compounds detected in the blank will be compared to the samples. Any concentration of common laboratory contaminants (i.e., phthalates, acetone, methylene chloride, or 2-butanone) in a sample lower than 10 times that found in the blank will be considered a laboratory contaminant and will be so qualified. For other contaminants, any compounds detected at concentrations lower than five times that found in the blank will be considered laboratory contamination (EPA 2020). Values reported for the method blanks are expected to be below the method detection limits (MDLs) for all analytes, except the common laboratory contaminants. Deviations from this must be explained in the laboratory project narrative(s).
- **One LCS**. The LCS is used to evaluate the performance of the total analytical system, including all preparation and analysis steps.
- **One MS**. Matrix specific QA/QC samples indicate the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. The information from these controls is sample/matrix specific and is not normally used to determine the validity of the entire batch.
- **At least one duplicate**. Duplicates are replicate aliquots of the same sample taken through the entire analytical procedure. The results from this analysis indicate the precision of the results for the specific sample using the selected method. One duplicate sample is analyzed with each preparation batch. If sufficient sample is provided, a MS and MSD will be analyzed. If sufficient volume is not available, a LCSD will be analyzed. Sample jar size has been selected to provide sufficient volume to complete MS/MSDs; however, volume may be lost if additional analysis is completed by the laboratory (such as re-analysis).
- **Initial and continuing calibration:** A calibration standard will be analyzed each time an instrument is calibrated. The instruments used to perform the analyses

will be calibrated, and the calibrations will be verified as required by EPA methodologies. For example, a standard five-point initial calibration will be utilized to determine the linearity of response with the gas chromatograph/electron capture detection. Once calibrated, the system must be verified every 12 hours. All relative response factors, as specified by the analytical method, must be greater than or equal to 0.05. All relative standard deviations, as specified by the analytical method, must be less than or equal to 30 percent for the initial calibration and less than or equal to 25 percent for the continuing calibration.

- **Surrogate evaluations:** Surrogates are compounds added to every sample at the initiation of preparation to monitor the success of the sample preparation on an individual sample basis (accuracy). Although some methods have established surrogate recovery acceptance criteria that are part of the method or contract compliance, for the most part, acceptable surrogate recoveries need to be determined by the laboratory. Recoveries of surrogates will be calculated for all samples, blanks, and QC samples. Acceptance limits will be listed for each surrogate and sample type and will be compared against the actual result by the data validator.
- **Laboratory management review:** The Laboratory Project Manager will review all analytical results prior to final external distribution (preliminary results will be reported before this review). If the QA Officer finds that the data meet project quality requirements, the data will be released as "final" information. Data which are not acceptable will be held until the problems are resolved, or the data will be flagged appropriately.

4.2 Additional Laboratory Quality Control Procedures

Additional laboratory quality control procedures will be evaluated to provide supplementary information regarding overall quality of the data, performance of instruments and measurement systems, and sample-specific matrix effects.

QC samples and procedures are specified in each method protocol. All QC requirements will be completed by the laboratory as described in the protocols, including the following (as applicable to each analysis):

- Instrument tuning
- Initial calibration
- Initial calibration verification
- Continuing calibration
- Calibration or instrument blanks
- Method blanks
- LCS/LCSD
- Internal standards
- Surrogate spikes

- Serial dilutions
- MS/MSD.

4.3 Field Quality Control

QA/QC samples will be collected during all sampling activities. Field duplicate and matrix spike/matrix spike duplicate samples will be collected as follows:

- Field duplicate samples will use the same naming system as the environmental samples so that they are submitted "blind" to the laboratory (Section 3.4). Field duplicates are useful in identifying problems with sample collection or sample processing. One duplicate sample will be collected for every 10 field samples of the same matrix. Each field duplicate will be analyzed for the same parameters as the samples to evaluate heterogeneity attributable to sample handling.
- One matrix spike/matrix spike duplicate sample (MS/MSD) will be collected for every 20 field samples. Extra sample containers (the same as those for the environmental sample) collected for MS/MSD analyses will be noted in field notes and on chain-of-custody forms submitted to the analytical laboratory. Extra sample bottles for MS/MSD will be labeled with a "-MS/MSD" suffix for clarity in sample processing.

Rinsate and equipment blanks will not be collected because samples will be collected using disposable supplies, with new sampling supplies used for each soil sample collected.

4.4 Additional Field Quality Control

Field quality control samples will be collected during the Phase 2 Interim Action. The field quality control samples consist of decontamination field blanks (one per day that sampling equipment is reused), and field duplicates (one for every ten samples, blind duplicates).

The goal is to have no detectable contaminants in decontamination blanks. If contamination is detected, the nature of the interference and the effect on the analysis of each sample in the batch will be evaluated. Data from affected samples may require qualification as "estimated" or "rejected."

4.5 Instrument and Equipment Testing, Inspection, and Maintenance

The primary objective of an instrument/equipment testing, inspection, and maintenance program is to aid in the timely and effective completion of a measurement effort by minimizing the downtime due to component failure.

Testing, inspection, and maintenance will be carried out on all field and laboratory equipment in accordance with manufacturer's recommendations and professional judgment.

Analytical laboratory equipment preventative testing, inspection, and maintenance will be addressed in the laboratory QA manual, which will be kept on file at the contracted laboratory.

As appropriate, schedules and records of calibration and maintenance of field equipment will be maintained in the field notebook. Equipment that is out of calibration or is malfunctioning will be removed from operation until it is recalibrated or repaired.

4.6 Instrument and Equipment Calibration and Frequency

Field equipment and laboratory instrumentation used for monitoring and sample analysis will be subject to the following calibration requirements:

- **Identification**. Either the manufacturer's serial number or the calibration system identification number will be used to uniquely identify equipment. This identification, along with a label indicating when the next calibration is due, will be attached to the equipment. If this is not possible, records traceable to the equipment will be readily available for reference.
- **Standards**. Equipment will be calibrated, whenever possible, against reference standards having known valid relationships to nationally recognized standards (e.g., National Institute of Standards and Technology) or accepted values of natural physical constraints. If national standards do not exist, the basis for calibration will be described and documented.
- **Frequency.** Equipment will be calibrated at prescribed intervals and/or prior to use. Frequency will be based on the type of equipment, inherent stability, manufacturers' recommendations, intended use, and observation of equipment readings over the course of the field work. All sensitive equipment to be used in the field or laboratory will be calibrated or checked prior to use.
- **Records**. Calibration records (certifications, logs, etc.) will be maintained for all measuring and test equipment used.

If field or laboratory equipment is found to be out of calibration, the validity of previous measurements will be investigated, and/or corrective action will be implemented. The Field Manager or the Laboratory Project Manager, respectively, will lead the evaluation process, which will be documented in the field forms or laboratory log book, respectively.

All laboratory calibration requirements must be met before sample analysis may begin. The laboratory will follow the calibration procedures dictated by the analytical methods to be

performed. If calibration non-conformances are noted, samples will be reanalyzed under compliant calibration conditions within method-specified hold times.

4.7 Inspection and Acceptance of Supplies and Consumables

The Field Manager will be responsible for material procurement and control. The Field Manager will verify upon receipt that materials meet the required specifications and that, as applicable, material or standard certification documents are provided, maintained, and properly stored with the project files. The Field Manager will also verify that material storage is properly maintained and that contamination of materials is not allowed.

The laboratory must document and follow procedures related to:

- Checking purity standards, reagent grade water, and other chemicals relative to intended use
- Preparing and storing chemicals
- Handling disposable glassware (including appropriate grade).

The Field Manager will be responsible for procuring and transporting the appropriate sample containers, equipment, and consumables (e.g., soap) to the Site. The containers will be pre-cleaned and certified by lot. If needed, reagents provided will be of the appropriate grade for the analysis. Records of these certifications and grades of material will be maintained on file at the laboratory.

5 Corrective Actions

Upon receipt of data, the QA Officer will evaluate field and laboratory precision by the RPDs between the field duplicate and sample data. Non-conforming items and activities are those which do not meet the project requirements or approved work procedures. Non-conformance may be identified by any of the following groups:

- **Field staff/Manager**: during the performance of field activities, supervision of subcontractors, performance of audits
- **Laboratory staff**: during the preparation for and performance of laboratory testing, calibration of equipment, and QC activities
- **QA Staff**: during the performance of audits and during data validation, through the use of data to make decisions (i.e., do the data make sense?).

If possible, the Field Manager will identify any action that can be taken in the field to correct any non-conformance observed during field activities. If necessary and appropriate, corrective action may consist of a modification of methods or a re-collection of samples. If implementation of corrective action in the field is not possible, the non-conformance and its potential impact on data quality will be discussed in the data quality section of the report.

Corrective action to be taken as a result of non-conformance during field activities will be situation-dependent. The laboratory will be contacted regarding any deviations from the QAPP, will be asked to provide written justification for such deviations, and in some instances, will be asked to reanalyze the sample(s) in question. All corrective actions must be documented. The person identifying the nonconformance will be responsible for its documentation.

Documentation will include the following information:

- Name(s) of the individual(s) identifying or originating the nonconformance
- Description of the nonconformance
- Any required approval signatures
- Method(s) for correcting the nonconformance or description of the variance granted.

Documentation will be made available to project, laboratory, and/or QA management. Appropriate personnel will be notified by management of any significant nonconformance detected by the project, laboratory, or QA staff. Implementation of corrective actions will be the responsibility of the Field Manager or the QA Officer. Any significant recurring nonconformance will be evaluated by project or laboratory personnel to determine its cause. Appropriate changes will then be instituted in project requirements and procedures to prevent future recurrence. When such an evaluation is performed, the results will be documented. If there are unavoidable deviations from this QAPP, the Project Manager will document the alteration and track the change in the subsequent deliverables.

6 Data Management Procedures

The project database will only have one result per constituent in a given sample. Where duplicate analyses of the same constituent are present in the data for the same sample due to reanalysis or inclusion in multiple analytical methods, only one value will be preserved in the primary database tables; this does not apply to duplicate samples which are maintained as separate samples in the database. The preserved value will be selected as follows: for non-detects, the result with the lower reporting limit; values without QA flags are preserved over flagged values; detections are selected over non-detects; where all other conditions are equal, the result with the higher concentration is preserved in the database.

For accepted data, concentrations will be averaged between the parent and field duplicate, using one-half the reporting limit if any values are undetected. The database will store both the parent and field duplicate data.

All hard copies of field forms or log book pages will be filed in the project library as scanned PDFs.

7 Audits and Reports

Field investigators will maintain field notes in a bound notebook or on field forms, and all documents, records, and data collected will be kept in a case file in a secure records filing area. All laboratory deliverables with verifiable supporting documentation shall be submitted by the laboratory to the QA Officer. The following documents will be archived at the laboratory: 1) signed hard copies of sampling and chain-of-custody records; and 2) electronic files of analytical data including extraction and sample preparation bench sheets, raw data, and reduced analytical data.

PDFs of all analytical reports will be retained in the laboratory files, and at the discretion of laboratory management, the data will be stored electronically for a minimum of 1 year. After 1 year, or whenever the data become inactive, the files will be transferred to archives in accordance with standard laboratory procedure. Data may be retrieved from archives upon request.

No audits, other than the identified data verification and validation, will be conducted.

8 Data Verification and Validation

Analytes detected at concentrations between the MRL and the MDL will be reported with a J qualifier to indicate that the value is an estimate (i.e., the analyte concentration is below the calibration range). J-qualified data are considered valid when completeness is calculated. Undetected data will be reported at the MRL. The MRL will be adjusted by the laboratory as necessary to reflect sample dilution or matrix interference.

Verification of completeness and method compliance, as well as raw data entry and calculations by analysts will be reviewed by the Laboratory Project Manager. The Laboratory Project Manager will be responsible for checking each group or test data package for precision, accuracy, method compliance, compliance to special client requirements, and completeness. The Laboratory Project Manager will also be responsible certifying that data in PDFs and EDDs are identical prior to release from the laboratory.

Data validation will be completed by a third-party data validator. Data validation will be completed within two weeks after receipt of the complete laboratory data package.

The laboratory will generate Level 2B data package for all analytes. Validation of the analytical data will comply with criteria set forth in the CLP National Functional Guidelines for Superfund Inorganic Methods Data Review (EPA 2020).

9 Data Quality (Usability) Assessment

The QA Officer will review the field notebooks, laboratory reports, and the data validation report to determine if the data quality objectives have been met. Instances where the data quality objectives were not met will be documented. The usability of the data will depend on the magnitude of the data quality objective exceedance. Data that has been rejected will be flagged as “R” and will not be included in the database. The QA Officer will determine if rejected data trigger additional sample collection.

10 References

CRETE 2024. Draft Interim Action Work Plan Phase 2 Removal Action. CRETE Consulting, Inc. June 24, 2024.

Ecology 2016a. Guidance for Remediation of Petroleum Contaminated Sites. Washington State Department of Ecology. Publication No. 10-09-057. November 2010, revised June 2016.

Ecology 2016b. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. Publication No. 04-03-030. July 2004, revised December 2016.

EPA 2020. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review. OSWER 9240.1-51. EPA 542-R-20-006. November 2020.

Tables

Table 1 Project Roles and Responsibilities

Role	Person	Responsibilities
Ecology Project Manager	Tena Seeds (425-457-3143)	• Direct other Ecology staff and their consultants to review and comment on materials • Grant final approval on this QAPP/IAWP, on data use, and on further data collection.
The Property Representative	Kyle Siekawitch (425-749-4325)	• Represents the Owner (7730 202nd, LLC [Bridge]) • Monitor all aspects of the project to verify that work follows Owner's goals and decisions
Consultant Team Project Manager	Grant Hainsworth (253-797-6323)	• Primary point of contact with Bridge. • Review all technical documents associated with the project for technical accuracy and feasibility, as well as adherence to budget and schedule.
Quality Assurance Officer	Jamie Stevens (206-799-2744)	• Monitor all aspects of the project to verify that work follows project plans • Review laboratory analytical data • Serve as liaison between the laboratory and Field Manager • Maintain a complete set of laboratory data • Review compliance with field methods and procedures.
Field Manager	Rusty Jones (832-330-1359)	• Collect or direct collection of soil samples • Maintain a log (field log book) for all sampling-related activities • Coordinate the sampling operations to verify that the this QAPP is followed • Identify any deviations from this QAPP • Prepare the field data and information for RI/FS • Maintain the integrity of samples throughout sample collection and transport to the laboratory.
Laboratory Project Manager	Eric Young Friedman and Bruya Lab (206-285-8282)	• Conduct analysis of soil and water samples • Practice quality assurance methods per internal laboratory standard operating procedures and this QAPP, and document such practices • Verify quality of samples (e.g., cooler temperature) as they're received at the laboratory • Verify accuracy and completeness of laboratory reports and EDDs.
Data Manager	TBD - Data Manager will be identified and their contact information provided to Ecology prior to commencing data collection.	• Evaluate conformance of the analyses with the specifications of this QAPP • Verify the reported results with the raw data • Check that EDDs match the analytical reports

Table 2 Soil Sample Analytes

Analyte	Preparation Method	Analytical Method	Method Reporting Limit	Lowest Initial Screening Level	Holding Time	Sample Container/ Preservation/ Storage
Aluminum (mg/kg)	3050/3050B	EPA 6020/6020B	166	33000	6 months	4-ounce glass/ Dark, 4°C.
Antimony			1	5.2		
Arsenic			1	7.3		
Cadmium			1	0.77		
Chromium			1	74.1		
Cobalt			1	11		
Copper			5	36		
Iron			1,600	36,000		
Lead			1	24		
Manganese			1	1100		
Nickel			1	48		
Selenium			0.27	0.78		
Silver			1	0.61		
Zinc			5	85		
Mercury (mg/kg)	3050B	EPA 6020/7471	0.03	0.07	28 days	4-ounce glass/ Dark, 4°C.

Notes:
mg/kg - milligram per kilogram
EPA – Environmental Protection Agency

Table 3 Measurement Quality Objectives

Parameter	Precision (RPD; lab/field)	Accuracy	Completeness
Metals	Soil 25%/50%	80-120%	100%

Note:
These data quality objectives will be applied to soil samples only.

Appendix A

Standard Operating Procedures and Field Forms

1 INTRODUCTION

1.1 Purpose and Applicability

This Standard Operating Procedure (SOP) describes the methods used for decontamination of field equipment used in the collection of environmental samples which may have contacted investigated media (including soil, groundwater, surface water, sediment, and other media). It is important to follow these procedures from a quality control (QC) perspective to ensure that environmental data generated in the field are of the highest quality and are not misrepresented or misinterpreted due to cross-contamination. Also, improperly decontaminated sampling equipment can lead to cross contamination and could expose field personnel to hazardous materials.

This SOP discusses the decontamination procedures to be used with reusable field equipment. Respective state or federal agency regulations may require specific types of equipment or procedures used in the decontamination of field equipment. The Project Manager should review applicable state/federal regulations (if any) prior to the start of field work and update this SOP per those regulations.

1.2 General Principles

Potential hazards associated with the planned tasks should be thoroughly evaluated prior to conducting field activities. The site-specific Health and Safety Plan (HASP) provides a description of potential hazards and associated safety and control measures.

Decontamination is accomplished by manually scrubbing, washing, or spraying equipment with detergent solutions, tap water, distilled/deionized water, steam and/or high pressure water or solvents. Generally this is conducted between each sampling site or collection points, unless sufficient sampling collecting tools are available. Waste decontamination materials, such as spent liquids and solids, are collected and managed as investigation-derived waste for later disposal.

Sampling personnel must wear powder-free nitrile gloves while performing the procedures described in this SOP. Specifically, nitrile gloves must be worn while preparing sample bottleware, preparing and decontaminating sampling equipment, collecting and processing samples, and packing samples. At a minimum, nitrile gloves must be changed prior to the collection of each sample or as necessary to prevent the possibility of cross-contamination with the sample, the sample bottleware, or the sampling equipment.

Consideration should be given to the order in which the samples are collected. In general, samples should be collected from areas suspected to be least impacted by contamination followed by areas suspected to be most impacted by contamination, thereby minimizing the potential for cross-contamination Prior to field activities, the field team should consider how investigation-derived waste (such as decontamination fluids) is to be handled.

1.3 Quality Assurance Planning Considerations

Sampling personnel should follow specific quality assurance guidelines as outlined in the site-specific Quality Assurance Project Plan (QAPP). Proper quality assurance requirements should be provided which will allow for collection of equipment blank samples in order to determine the effectiveness of the decontamination procedures.

Solvent selection is an important consideration and should be evaluated for each scope of work, at each site. There are several factors which shall be considered. The solvent should not be an analyte of interest, the sampling equipment should be resistant to the solvent, and the solvent must evaporate or be water soluble or preferably both.

Pesticide-grade methanol is the solvent of choice for general organic analysis. Hexane, acetone, and isopropanol are also good choices for organic analysis. A 10% nitric acid in deionized water solution is the solvent of choice for general metals analysis. Nitric acid can be used on Teflon, plastics and glass. If used on metal equipment, the nitric acid will eventually corrode the metal and could introduce metals from the sampling equipment into the environmental samples. Dilute hydrochloric acid can also be used for metal analysis.

All Decontamination should be performed a safe distance away from the sampling area as to not interfere with sampling activities.

1.4 Health and Safety Considerations

The health and safety considerations for the site, including both potential physical and chemical hazards, will be addressed in the site-specific Health and Safety Plan (HASP). All field activities will be conducted in conformance to this HASP.

At a minimum, the following precautions should be taken in the field during these cleaning operations:

• When conducting field cleaning or decontamination using laboratory detergent, safety glasses with splash shields or goggles, and latex gloves will be worn.

• No eating, smoking, drinking, chewing, or any hand to mouth contact should be permitted during cleaning operations

2 RESPONSIBILITIES

2.1 Sampling Technician

It will be the responsibility of the sampling technician to be familiar with the decontamination procedures outlined within this SOP, the HASP, the QAPP, and the Sampling Plan. The sampling technician is responsible for the proper decontamination of all field equipment and proper documentation. The sampling technician is also responsible for ensuring that all decontamination producers are following by all subcontractors. Decontamination may be required on heavy equipment; it is the responsible of the sampling technician to ensure all equipment has been properly decontaminated.

2.2 Field Project Manager

It will be the responsibility of the field project manager to ensure that the sampling technician understands the decontamination producers and has access to all materials required for decontamination. The field project manager is also responsible for all waste generated during decontamination producers.

3 REQUIRED MATERIALS

In addition to those materials provided by the subcontractor, the project geologist/sampling engineer may require:

- Decontamination agents
- Chemical free paper towels
- Waste storage containers
- Cleaning storage containers
- Cleaning brushes
- Pressure sprayers (if required)
- Squeeze bottles
- Plastic sheeting
- Aluminum foil
- Health and safety equipment (as required by HASP)
- Project notebook/field sheets/pen

Sampling equipment which comes in direct contact with environmental samples during the sample collection process should be constructed of stainless steel, teflon, or glass, unless specified otherwise in the Project Sampling Plan or QAPP.

4 METHOD

4.1 General Method Description

It should be assumed that all sampling equipment, even new items, are contaminated until the proper decontamination procedures have been performed, unless, certificate of analysis is available and demonstrates the items are clean.

It is important to set up a decontamination cleaning station. This will vary depending on site acitivites and site access. Generally speaking, an decontamination area for small/hand held equipment cleaning should include a barrier (e.g. plastic sheeting) to work on, should decontamination tubs and/or buckets and rinse bottles in order of use on top of the barrier. Decontamination solution containing solutions and water should be gathered and put into accessible containers within easy reach of the decontamination tubs). Record the source of the water in the field logbook.

For decontamination of drilling rigs or backhoes/excavators, establish an area for decontamination that will meet the program and site-specific requirements for collection of decontamination fluids. If necessary, set up a decontamination pad. If containerization of decontamination fluids associated with decontaminating large equipment (such as drilling rigs and backhoes/excavators) is required, it is imperative to ensure that the subcontractor will have appropriate equipment onsite. This equipment may include a portable electric generator and a high-pressure steam-cleaner or steam-jenny. In addition, a decontamination pad or portable containment system should be used to collect fluids. The contractor shall conduct gross decontamination (such as removing general mud from large equipment) prior to arriving at site.

All equipment used for sampling, testing, or measuring, including excavating and drilling equipment, that comes in contact with potentially sampled media will be decontaminated prior to use unless the equipment is prepackaged and sealed by a manufacturer of environmental sampling equipment. Reusable sampling equipment will also be decontaminated between sampling locations. If disposable sampling equipment (clean prepackaged materials) is used, this equipment will not be decontaminated before use and will be disposed of properly after one use. Disposable equipment will not be used at more than one sampling location.

The following presents decontamination procedures for manual sampling equipment and heavy equipment.

4.2 Equipment Decontamination – Small Hand Held Equipment

The following general decontamination steps should be applied to all equipment prior to initial use (unless using clean prepackaged environmental sampling equipment) or that have been utilized to collect sample media for analytical purposes. Site-specific project control documents may specify modifications to these procedures and should be followed when applicable. It is important to note that no acids or solvents will be used to decontaminate any electrical or electronic instrumentation unless specified by the manufacturer.

a. Physically remove visible material from the sampling equipment to the extent practical before decontaminating the equipment with decontamination fluids. If this material appears to be impacted based on visual observation, instrument readings, or other credible indication, collect and manage this material in accordance proper procedures.
b. Immerse (to the extent practicable) the equipment in the cleaning solution and scrub the equipment thoroughly with a stiff brush until visible residual material is removed and the equipment is visibly clean. Circulate detergent solution through equipment that cannot be disassembled such as submersible pumps (ASTM, 1990).
c. Rinse the equipment thoroughly with potable water.
d. Rinse the equipment with organic desorbing agent (e.g., isopropyl alcohol). If samples are not being collected for analysis of organic compounds, omit this step (ASTM, 1990).
e. Rinse the equipment thoroughly with potable or DI water.
f. To the extent practicable, allow the equipment to air dry in a clean area (equipment does not need to be completely dry before reuse; under certain weather conditions, complete air drying is not possible).
g. Change the initial decontamination solution daily and/or between sites at a minimum and more frequently as needed. Collect decontamination solvents in a separate container from water/detergent solutions and properly containerize, store, and dispose of decontamination solutions.

If decontaminated equipment will not be used immediately, the equipment may be wrapped in aluminum foil (if used for organics only) or sealed in a plastic bag for storage. Decontamination activities, including date, time, and reagents used, should be documented in the field logbook and decontaminated sampling equipment should be labeled with this information as appropriate.

4.3 Equipment Decontamination – Decontamination of Heavy Equipment

The following steps for decontamination can be applied to heavy equipment.

a. Physically remove as much of the visible material as possible from the heavy equipment after use and prior to steam cleaning. If contaminated material is suspected as determined by visual observations, instrument readings, or other means, collect material in an appropriate container. Otherwise, return the material to the area where it originated.
b. Place the heavy equipment on the decontamination pad in the decontamination area. If wash water is to be collected, ensure that the collection mechanism functions properly and that the decontamination pad has no leaks.
c. Steam clean parts of the heavy machinery that come into contact with visible material (such as tires, bulldozer bucket, augers, and back of drill rig).
d. For any portion of the heavy equipment that comes into contact with the sampling media, decontaminate by following listed in Section 4.2.
e. Containerize fluids, if appropriate. Place solids in a drum or other appropriate container.

5 QUALITY CONTROL

Quality control requirements are dependent on project-specific sampling objectives. The QAPP will provide requirements for equipment decontamination (frequency and materials), sample preservation and holding times, sample container types, sample packaging and shipment, as well as requirements for the collection of various quality assurance samples such as trip blanks, field blanks, equipment blanks, and field duplicate samples.

Equipment blanks and Field blanks are generally made by pouring laboratory-supplied deionized water into, over, or through the freshly decontaminated sampling equipment. Blanks should be labeled as a sample and submitted to the laboratory to be analyzed for the same parameters as the associated sample.

6 DOCUMENTATION

Various forms are required to ensure that adequate documentation is made of sample collection activities. These forms include:

- Boring logs
- Field log books
- Sample collection records
- Chain-of-custody records
- Shipping labels

The field team should document and log all field sampling decontamination methods. Repetitive decontamination of small items of equipment does not need to be logged each time the item is cleaned.

7 REFERENCES

ASTM. Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites: D 5088-90, 1990.

1 INTRODUCTION

1.1 Purpose and Applicability

This Standard Operating Procedure (SOP) describes the methods for collecting shallow or surficial (less than 4 feet) environmental soil samples using hand tools. Shallow

1.2 Quality Assurance Planning Considerations

Project personnel should follow specific quality assurance guidelines for sampling as outlined in the site-specific Quality Assurance Project Plan (QAPP) and/or Sampling Plan. Proper quality assurance requirements should be provided which will allow for collection of representative samples from representative sampling points. Quality assurance requirements typically suggest the collection of a sufficient quantity of field duplicate, field blank, and equipment blank samples.

1.3 Health and Safety Considerations

All utilities (electric, water, sewer, etc.) or property owners who may have equipment or transmission lines buried in the vicinity of proposed shallow samples should be notified. Sufficient time should be allowed after notification (typically 3 working days) for the utilities to respond and mark locations of any equipment that may be buried on site. The estimated location of utility installations, such as sewer, telephone, electric, water lines and other underground installations that may reasonably be expected to be encountered during excavation work, shall be verified by the site owner prior to opening an excavation and may require a private utility locate to verify location and or material present. The subcontractors will be made aware of the potential of encountering underground utilities at each location.

The health and safety considerations for the site, including both potential physical and chemical hazards, will be addressed in the site-specific HASP. All field activities will be conducted in conformance to this HASP.

2 RESPONSIBILITIES

2.1 Project Manager

The project manager will be responsible for ensuring that the project-specific requirements are communicated to the project team and for providing the materials, resources, and guidance necessary to perform the work in accordance with this SOP and the project plan.

2.2 Project Geologist/Engineer

It will be the responsibility of the geologist/engineer to collect representative samples from area and to log the sample location in according to the procedures described in this SOP.

3 REQUIRED MATERIALS

Materials and Equipment generally includes the following items:

- Stakes
- Hand Augers or Power Augers (multiple size stainless steel buckets)
- Stainless steel trowels
- Sample kit (bottles, labels, custody records, cooler, ice, etc.)
- Measuring tape
- Sheet plastic
- Sampling Equipment: spoons, trowels, scoops, shovels
- Field records/logbook (test pit log, test pit profile log)
- Project plans (HASP, QAPP, Sampling Plan)
- Decontamination materials and solutions

4 METHOD

4.1 General Preparation

Surficial soil samples shall be collected as follows.

Vegetation at the sample location is removed by cutting or scraping away with a stainless steel trowel. While drilling the hole, remove gravel or other debris before obtaining the sample. Advance the auger or trowel to a depth of approximately six inches and then removed from the hole. Using pre-cleaned stainless steel equipment, extrude the soil directly into the sampling containers. If dedicated sampling equipment is not used, sampling equipment must be decontaminated before collecting another sample.

If sampling from an open excavation, care should be taken when entering the excavation. All workers should have a safe way of entering and exiting the excavation.

Samples for VOC analysis must be collected first. Fill VOC sample containers as full as possible to minimize headspace losses or use sampling kit provided by laboratory. Fill separate containers with a sufficient quantity of soil for analyses of other required parameters. Immediately place the samples on

ice at 40 C. Enter all data into a permanent field log book. Describe soil samples as indicated below in Section 3.0, Lithologic Logging.

4.2 Backfilling

Prior to backfilling, all collected information will be reviewed to ensure that all the appropriate and/or required logs, photographs, measurements and samples have been collected. For most sample locations the surplus material not used for sample collection can be placed back in the hole and the location can be returned to a fairly smooth surface.

It should be noted that project-specific requirements may include the use of clean backfill material. The requirements for clean backfill and the potential requirements for disposal of excavated soils should be defined within the project-specific plan.

5 QUALITY CONTROL

Quality control requirements for sample collection are dependent on project-specific sampling objectives. The QAPP will provide requirements for sample preservation and holding times, container types, sample packaging and shipment, as well as requirements for the collection of various quality assurance samples such as trip blanks, field blanks, equipment blanks, and field duplicate samples.

6 DOCUMENTATION

Soil locations shall be referenced on the site map. A sampling log sheet is provided at the end of this SOP.

Photographs of specific geologic features may be required for documentation purposes. A scale or an item providing a size perspective shall be placed in each photograph. Frame number/picture location shall also be documented in the field log book.

The following records will be maintained:

- Sample location Log
- Sample collection records
- Field notebook
- Chain-of-custody forms
- Shipping receipts

All documentation will be placed in the project files and retained following completion of the project.

7 TRAINING/QUALIFICATIONS

Field personnel should be health and safety certified as specified by OSHA (29 CFR 1910.120(e)(3)(i)) to work on sites where hazardous materials may be present. All training requirements shall be current.

Specific sites may require additional training. All training requirements shall be confirmed with the project manager before arriving at the job site.

8 REFERENCES

United States Environmental Protection Agency. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM). USEPA, Region 4, Enforcement and Investigations Branch, Athens, GA. November 2001.

29 CFR Part 1926.650-652

Surface and Subsurface Soil Field Form	
Project	
Sampler	
Date and Start Time	
Date and End Time	
Weather (attach copies of detailed weather reports)	

Surface Soil Location	Sample Depths	Notes/Comments

Surface Soil Location	Sample Depths	Notes/Comments

DAILY FIELD REPORT	
PROJECT NAME:	**DATE:**
LOCATION:	**ARRIVE AT SITE:**
COMPLETED BY:	**DEPART SITE:**
WEATHER CONDITIONS:	**REVIEWED BY:**

PURPOSE:

OBSERVATIONS AND SUMMARY:

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Company Name: CRETE Consulting Inc., PC	Contact/Report To:
Street Address: 16300 Christensen Road Suite 214 Tukwila, WA 98188	Phone #:
	E-Mail:
	Cc E-Mail:
Customer Project #:	Invoice to:
Project Name:	Invoice E-mail:
Site Collection Info/Facility ID (as applicable):	Purchase Order # (if applicable):
	Quote #:
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET	County / State origin of sample(s):

Data Deliverables:

[ ] Level II [ ] Level III [ ] Level IV

[ ] EQUIS

[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

Rush (Pre-approval required):

[ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day Other _____

Date Results Requested:

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only

Proj. Mgr:

AcctNum / Client ID:

Table #:

Profile / Template:

Prelog / Bottle Ord. ID:

Preservation non-conformance identified for sample.

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Residual Chlorine Result	Residual Chlorine Units	Sample Comment

Additional Instructions:

Collected By:
Printed Name
Signature

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C):	Corrected Temp. (°C):	[ ] On Ice

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

Delivered by: [ ] In- Person [ ] Courier

[ ] FedEX [ ] UPS [ ] Other

Photograph 1: xxxxxxTitlexxxxxx.
View to the xxxdirectionxxx. Date: xxxxx/2024

Photograph 2: xxxxxxTitlexxxxxx.
View to the xxxdirectionxxx. Date: xxxxx/2024

Photograph 3: xxxxxxTitlexxxxxx.
View to the xxxdirectionxxx. Date: xxxxx/2024