Water Management Plan

Revision: R4

August 29, 2024

LOWER DUWAMISH WATERWAY

Upper Reach Remedial Action

Contract KC001065

Prepared By:

Pacific Pile&Marine

700 S. Riverside Dr.

Seattle, WA 98108

Pacific Pile & Marine, LP
700 South Riverside Drive
Seattle, WA 98108

T 206 331-3873
F 206 774-5958
License # PACIFPM922J3

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1. Introduction

1.1 Purpose

This Water Management Plan will be included in the Environmental Mitigation Binder, to be used for the duration of the Work. The Water Management Plan shall specify management, controls, and treatment for drainage water, stormwater, and wastewater (effluent) within the Waste Management Duwamish Reload Facility (DRF) and SMA 5 imported backfill materials and temporary stockpiles during upland excavation as specified in Spec Section 01 35 43 Environmental Procedures. Water management and/or water quality control for SMA 13 placement activities and Bulkhead Installation at SMA 9 are covered in the Water Quality Management Plan because this work will be performed from water-based equipment in water-based work zones.

1.2 Project Organization & Communication

Please refer to Section 2 of the Remedial Action Work Plan on the project team, organization and communication flows.

1.3 Managing Water in Other Activities

- For details regarding how water is managed during in-water dredging operations, barge dewatering, and contaminated barge transit please refer to the Water Quality Plan and Dredging and Excavation Plan.
- For details regarding the management of water impacted sediment at SMA 5 please refer to the Erosion and Sediment Control Plan.
- For details on how stormwater is managed at SMA 5 please refer to the Stormwater Pollution Prevention Plan.
- For details regarding the management of water during barge unloading at the DRF please refer to the Transloading, Transportation, and Disposal Plan.

2.0 Work Site Layout

The SMA 5 worksite is located at 9201 East Marginal Way S 98101. The DRF is located at 7400 8th Ave S, Seattle, WA 98108.

2.1 SMA 5 Staging and Stockpile Areas

The worksite location elements associated with performing SMA 5 remain under development and will be submitted at a later date prior to construction.

Please refer to Attachment A for a conceptual layout of SMA 5 clean and contaminated stockpile areas., wheel wash, and wash pad.

2.2 Waste Management Duwamish Reload Facility

Please refer to Attachment B for the layout of the DRF and its associated elements.

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3.0 Methods to Contain, Collect, and Treat Effluent

3.1 SMA 5

The work for the containment, collection, and treatment of effluent at SMA 5 is under development and will be submitted at a later date prior to construction.

3.2 Waste Management Duwamish Reload Facility

Containment:

- The area where contaminated sediments and upland materials are handled has been established as the Operation Containment Area (OCA). In addition to these materials streams, all non-rigid containerized (i.e. super sack) materials having the potential for stormwater contamination if spilled will be stored within the OCA. The boundary of this area is shown in Attachment B. Stormwater runoff from the OCA is contained and treated as wastewater because it potentially may have contacted contaminated materials.
- A 6-inch-height asphalt curb is already installed around the OCA to contain water draining from contaminated sediment stockpiles and contaminated stormwater.
- A sediment processing area, used to contain and/or process sediment, is constructed over the asphalt pavement.
- A wheel wash located in the northwest of the sediment processing area inside the OCA is used for trucks leaving the OCA. Water utilized in the wheel wash is treated and disposed per the below treatment section. Solids will be disposed of via the 8th Ave Operations Plan located as an attachment to the Transloading, Transportation, and Disposal plan.
- A spill containment zone is located between the barge berthing area and the sediment processing area, where the barge offloading bucket moves back and forth when offloading barges. This area is asphalt-lined with an asphalt berm that is sloped away from the water to a small basin to allow accumulated water to be pumped to the wastewater treatment system. This provides containment for liquids and solids and minimizes the potential for spillage into the LDW.

Collection:

- The upland soil bunkers part of the OCA, which is surrounded by a 6-inch-minimum height curb. Free liquids collected from within the OCA area, including contact and in situ liquids, will be conveyed to the water pre-treatment system for discharge to the sanitary sewer. Upland soils and industrial/manufacturing wastes may arrive at the Facility in a dry state or have in situ water content. Dewatering is not typically required for upland materials, but, should dewatering be required, upland materials may be transferred to the Sediment Processing Area for processing or dewatering.

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Treatment:

- The water pre-treatment system is required by the King County Industrial Waste Program (KCIW) Waste Discharge Permit and treats all Facility wastewater and non-categorical liquids prior to discharge to the sanitary side sewer 4" stub indicated in Attachment B.
- The pre-treatment system is located to the southwest of the sediment processing area.
- The water pre-treatment system is a chitosan-enhanced sand filtration (CESF) system with granular activated carbon (GAC) vessels for a polishing treatment step, designed to remove suspended solids and associated pollutants such as hydrocarbons, metals, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs). In general, the pre-treatment process includes an inlet weir/settling tank, storage/treatment tanks, a sand filter system consisting of individual sand filter vessels, and a control system housed within a trailer. Two GAC vessels are used for the final polishing treatment step prior to discharge. Treated water may either be temporarily stored in the storage tanks or discharged directly to the sanitary sewer.
- The water pre-treatment system has been designed to manage in excess of the 2-year recurrence interval, 24-hour duration storm event. The pre-treatment system is designed with pre-treatment and post-treatment storage to support 24-hour dredge operations during the design storm event. The pre-treatment system is operated only by appropriately trained and qualified personnel.

4.0 Identification of Potential Pollution Sources

Potential sources of pollution that may affect the quality of stormwater discharge from the Work Site include:

- Suspended solids from clean import stockpiles (SMA 5)
- Contaminated soil and debris stockpiles. (SMA 5 & DRF)
- Spills and leaks from machinery and storage tanks. (SMA 5 & DRF)
- Track out of contaminated sediment from the excavation areas (SMA 5)
- Track out of contaminated sediment from the OCA (DRF)

5.0 Methods to Manage Stormwater & Surface Water Discharge

The effluent from stockpile areas listed below will be discharged in accordance with federal, state and local laws and regulations consistent with 01 35 43 3.07 A. 6.

5.1 SMA 5

The work for managing stormwater and surface water discharge at SMA 5 is under development and will be submitted at a later date prior to construction.

5.2 Waste Management Duwamish Reload Facility

- All stormwater runoff collected outside the OCA is treated via an advanced stormwater treatment system (ATS) prior to discharge to the LDW. The stormwater collection and drainage system convey stormwater from the five drainage areas outside of the OCA to the ATS via a single force main. Treated stormwater is discharged through a single outfall in accordance with the NPDES permit. The stormwater ATS has been designed to manage in excess of the 2-year recurrence interval, 24-hour duration storm event.
- All stormwater runoff collected within the OCA is treated as wastewater and directed to the water pre-treatment system prior to being discharged to the sanitary sewer. Most of the stormwater within the OCA flows into storm drain catch basins, while some may be captured by the spill containment area sump. Stormwater runoff is then pumped to the water pre-treatment system from the stormwater catch basins. Additional details about the DRF can be found in the Transloading, Transportation, and Disposal Plan.
- Surface water flows within the OCA are collected as treated stormwater flows.
- Surface water flows outside the OCA that have not contacted potentially contaminated materials will be directed through the existing curb and gutter systems provided by Waste Management and existing public infrastructure.

6.0 Wastewater Management Procedures

6.1 SMA 5

The work for managing wastewater at SMA 5 is under development and will be submitted at a later date prior to construction.

6.2 Waste Management Duwamish Reload Facility

Wastewater discharge from solid waste handling activities is managed through a Waste Discharge Permit administered by KCIW. Wastewater sources include contaminated sediment decant water and OCA stormwater that has contacted contaminated sediments. A pre-treatment system is in place to treat Facility wastewater prior to discharge to the sanitary sewer.

7.0 Wastewater Storage Tanks

7.1 SMA 5

The work for operating and maintaining wastewater storage tanks at SMA 5 is under development and will be submitted at a later date prior to construction.

7.2 Waste Management Duwamish Reload Facility

The existing storage tanks will be monitored daily to ensure they are functioning correctly and not leaking. Additional details about the DRF can be found in the Transloading, Transportation, and Disposal Plan.

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Attachment A- SMA 5 Site Layout

PROPOSED SMA 5 WORK SITE LAYOUT

HAUL TRUCK ROUTE

WHEEL WASH STATION

TANK

STAGING AND STOCKPILE AREA LIMITS

GENERATOR

HAUL TRUCK LOADING

JERSEY BARRIER CONTAINMENT

DUMPING ZONE FOR OFF-ROAD TRUCKS

MATERIAL HANDLER

TANK

TANK

CLEAN STOCKPILE

EQUIPMENT EXIT

DECON AREA

JERSEY BARRIERS & CONTAINMENT

DIRTY STOCKPILE

FUEL

EQUIPMENT ENTRANCE

CONTRACTOR PARKING

CONTRACTOR OFFICE/TOOLS

REMOVE FENCE FOR OFF-ROAD TRUCK ACCESS

APPROX. SMA 5 BOUNDARY

Image Landsat / Copernicus

GENERAL NOTES:

1. N.T.S.
2. PLAN IS SUBJECT TO ADJUSTMENT AND WILL BE RECONFIRMED PRIOR TO 2026 CONSTRUCTION SEASON
3. FIRE SUPPRESSION METHODS (EXTINGUISHERS, ETC.) WILL BE STATIONED AROUND THE WORK SITE

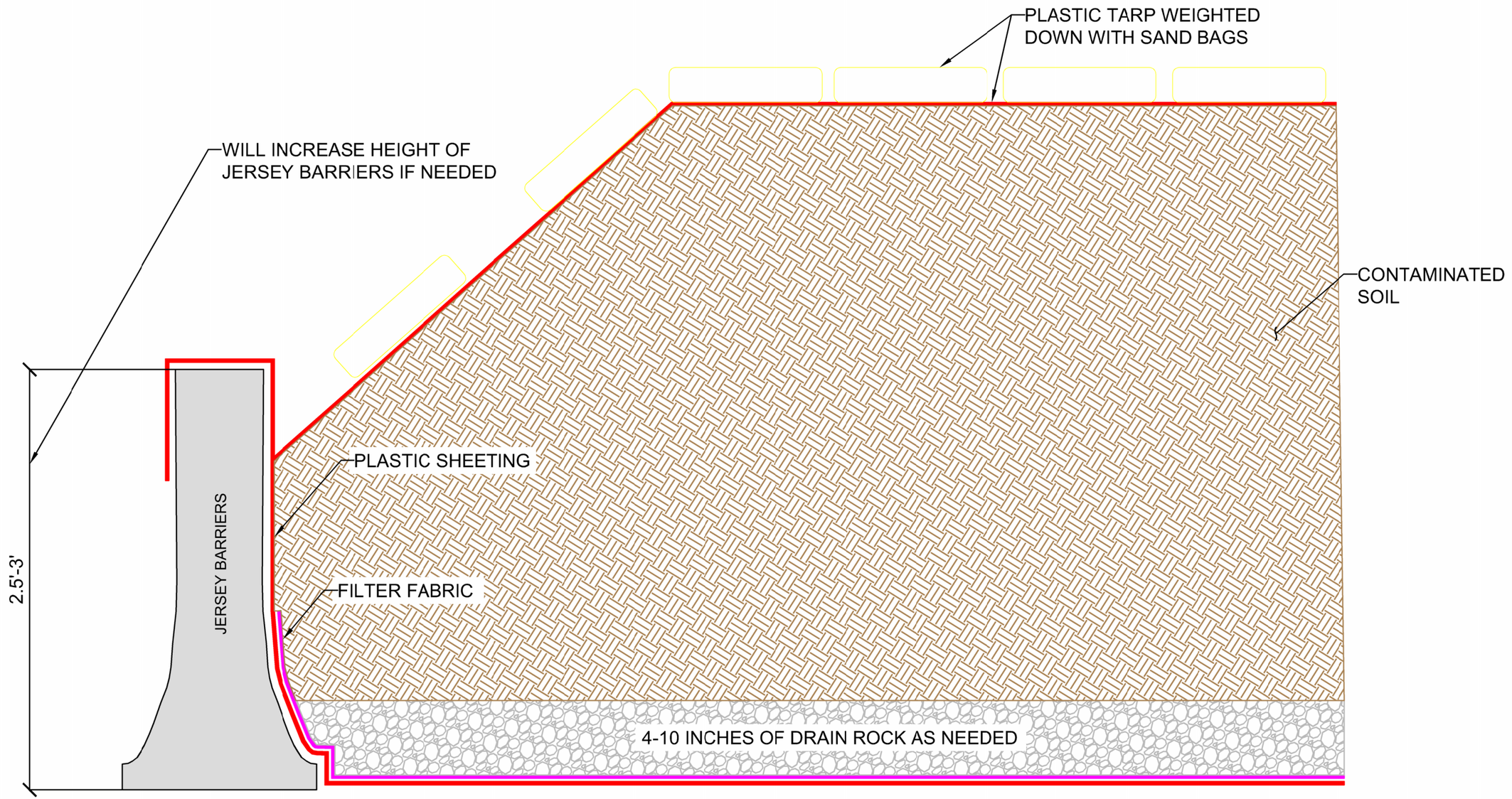
Sketch by	Checked by	Approved by – date	Filename	Date	Scale
AMBER HARDEN	PPM	N/A	SMA 5 LAYOUT	7/6/24	N.T.S.

LOWER DUWAMISH WATERWAY
UPPER REACH REMEDIAL ACTION
KC001065

SMA 5 LAYOUT

01	Edition 01	Sheet 01

PROPOSED CROSS-SECTIONAL CONTAINMENT AREA



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LOWER DUWAMISH WATERWAY
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SMA 5 LAYOUT

Edition	Sheet
01	02

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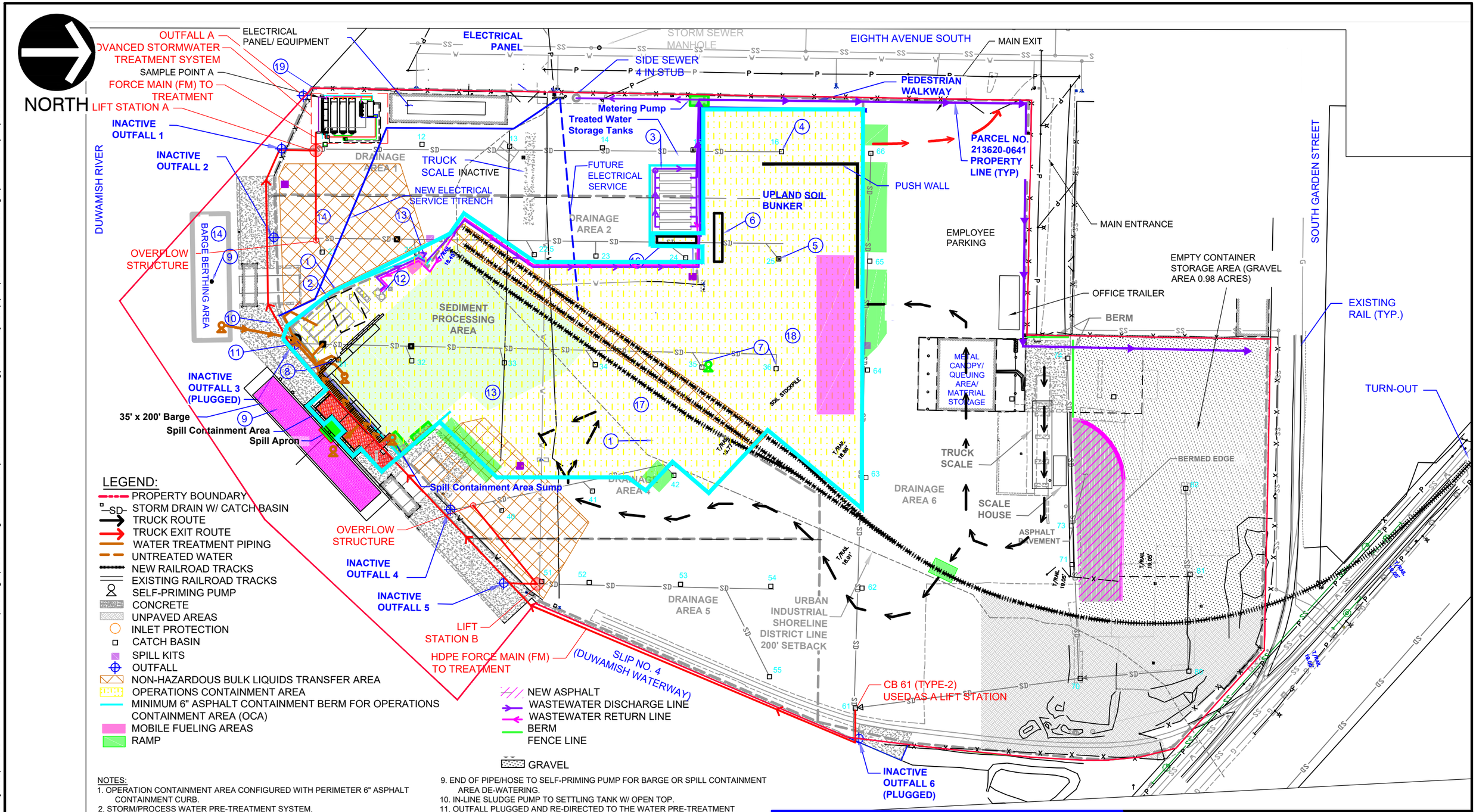
Attachment B- Waste Management Duwamish Reload Facility Site Layout



NOTES:

1. OPERATION CONTAINMENT AREA CONFIGURED WITH PERIMETER 6" ASPHALT CONTAINMENT CURB.
2. STORM/PROCESS WATER PRE-TREATMENT SYSTEM.
3. TREATED WATER STORAGE SYSTEM. 23,000 GAL. CURBED CONTAINMENT, WITH DRAIN VALVE NORMALLY CLOSED.
4. STORMWATER CATCH BASIN MODIFIED BY INSTALLING A MECHANICAL PLUG IN DOWNSTREAM PIPE TO PREVENT FLOW INTO MAIN TRUNK LINE.
5. INSTALL MECHANICAL PLUG OVER THE INLET TO TEMPORARILY PREVENT FLOW TO DUWAMISH RIVER.
6. WHEEL WASH - ALL VEHICULAR TRAFFIC LEAVING SOIL STOCK PILE AREA AND RAIL LOADING AREA WILL PASS THROUGH WHEEL WASH UPON EXITING.
7. SEDIMENT TRAP PLACED WITHIN CATCH BASIN.
8. SELF-PRIMING PUMPS AT CATCH BASIN TO DIRECT TO WATER PRE-TREATMENT SYSTEM.
9. END OF PIPE/HOSE TO SELF-PRIMING PUMP FOR BARGE OR SPILL CONTAINMENT AREA DE-WATERING.
10. IN-LINE SLUDGE PUMP TO SETTLING TANK W/ OPEN TOP.
11. OUTFALL PLUGGED AND RE-DIRECTED TO THE WATER PRE-TREATMENT SYSTEM.
12. GRANULAR ACTIVATED CARBON VESSELS.
13. MOBILE FUELING AREAS.
14. CONTAINERIZED MEDIA TRANSFER AREA.
15. RIGID CONTAINERIZED MEDIA STORED THROUGHOUT SITE.
16. WHEEL WASH WATER TANK.
17. LIQUIDS TRUCK DUMPING AREA. WASTEWATER DRAINED TO PRETREATMENT SYSTEM VIA CB#34.
18. VAC TRUCK SOLIDS TRUCK DUMPING AREA.
19. ADVANCED STORMWATER TREATMENT SYSTEM.

Civil & Environmental Consultants, Inc.
4045 NW 64th Street · Suite 415 · Oklahoma City, OK 73116
Ph: 405.246.9411
www.cecinc.com

WASTE MANAGEMENT
DUWAMISH RELOAD FACILITY

OVERALL SITE PLAN

DRAWN BY:	CWS	CHECKED BY:		APPROVED BY:		FIGURE NO.:
DATE:	05/09/2023	DWG SCALE:	SEE SHEET	PROJECT NO:	196-659	2