Response to Comments

Remedial Investigation

Crowley Marine Services 8th Ave S. Cleanup Site

Seattle, WA

Toxics Cleanup Program

Washington State Department of Ecology

Northwest Regional Office

Shoreline, Washington

July 2024

DEPARTMENT OF ECOLOGY
State of Washington

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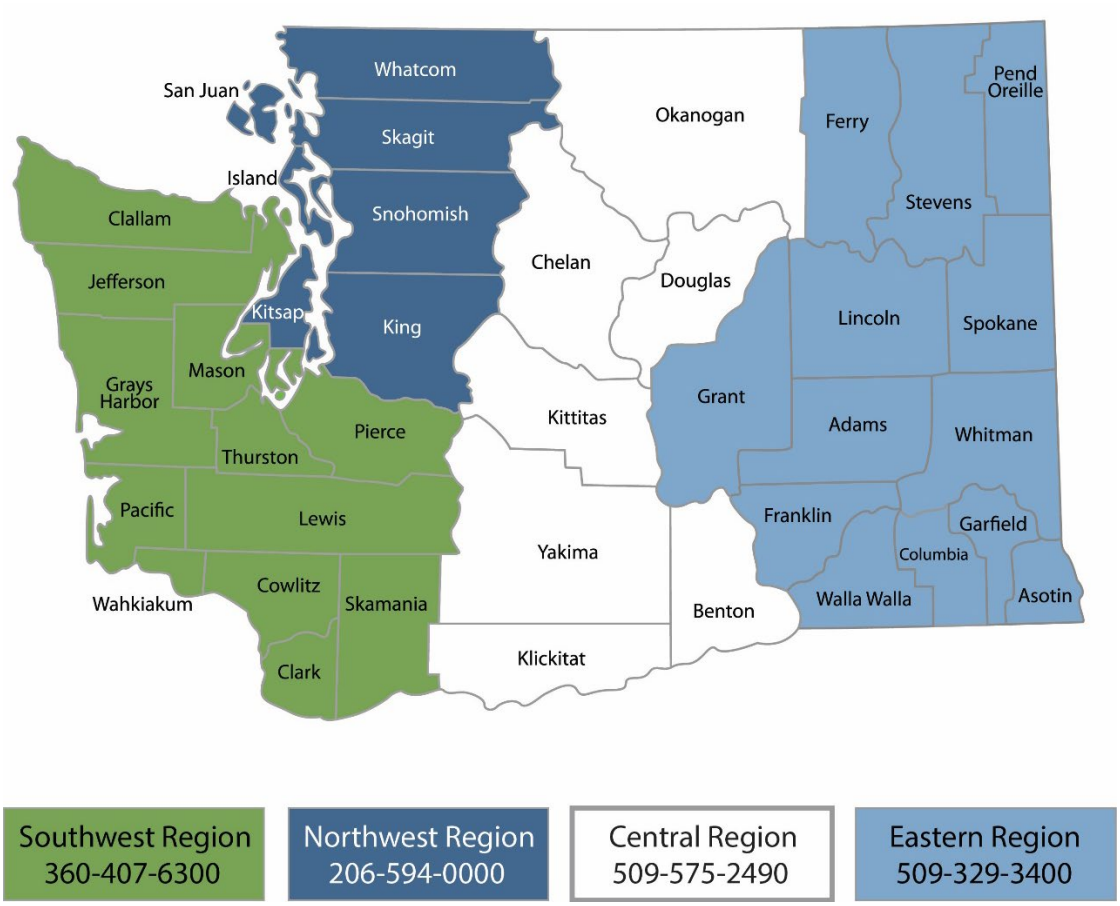
[1] www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
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Public Outreach Summary

The Crowley Marine Services 8th Ave S. cleanup site (Site), located in Seattle is continuing Washington State's formal cleanup process[2] as directed under the Model Toxics Control Act (MTCA[3]). 8th Avenue Terminals is addressing contamination at the Site under a legal agreement called an Agreed Order (AO) with Ecology.

The Washington State Department of Ecology is overseeing a cleanup of the Crowley Marine Services 8th Ave S. (Crowley Marine) cleanup site near Seattle's South Park and Georgetown neighborhoods. The AO requires 8th Avenue Terminals to address contamination at the site.

Ecology invited input on the following document:

- **Remedial Investigation**: A document detailing the nature (types) and extent (locations) of the contamination at the site.

The Department of Ecology's public involvement activities related to this Site's 30-day comment period (May 20 – June 18, 2024) included:

- **Fact Sheet:**
  - US mail distribution of a fact sheet providing information about the cleanup documents and the public comment period, to approximately 3002 addresses including neighboring businesses and other interested parties.
  - Email distribution of the fact sheet to 103 people, including interested individuals, local/county/state/federal agencies, neighborhood associations, and interested community groups.
  - The fact sheet was available digitally through Ecology's cleanup site webpage[4].
- **Legal Notices:**
  - Publication of one paid display ad in *The Seattle Times*, dated May 17, 2024
- **Site Register:**
  - Publication of 4 notices in Ecology's Toxics Cleanup Site Register:
    - Comment Period Notice:
      - May 16, 2024
      - May 30, 2024
      - June 13, 2024
    - Response Summary Notice:
      - September 5, 2024
    - Visit Ecology's Site Register website[5] to download PDFs.

[2] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process
[3] https://ecology.wa.gov/mtca
[4] https://apps.ecology.wa.gov/cleanupsearch/site/2520
[5]https://apps.ecology.wa.gov/publications/UIPages/PublicationList.aspx?IndexTypeName=Program&NameValue=Toxics+Cleanup&DocumentTypeName=Newsletter

- **Community Office Hours:**
  - Ecology hosted an 'office hours' where we hosted a table at Georgetown Brewing[6] on Wednesday, May 22nd, 2024, at 5:30 p.m. Phone interpretation was available in Spanish, Chinese, Vietnamese, and Khmer. Ecology presented details on the Crowley Marine site, the review document, and then answered questions.
- **Websites**:
  - Ecology announced the public comment period, posted the fact sheet and postcard, and made the review documents available on Ecology's Crowley Marine Services webpage[7] and Ecology's Public Inputs & Events webpage[8].
- **Document Repositories:**
  - Ecology made the documents at the South Park Branch of the Seattle Public Library at 8604 8th Ave S., Seattle, WA 98108. Documents were also available at the Northwest Regional Office in Shoreline, WA.

Comment Summary

From May 20 – June 18, 2024, Ecology solicited public comments on a Remedial Investigation for the Crowley Marine cleanup site.

Ecology received 2 comments during the 30-day comment period.

Table 1: List of Commenters

	First Name	Last Name	Agency/Organization/Business	Submitted By
1	Jamie	Hearn	Duwamish River Community Coalition	Organization
2	Jill	Macik	City of Seattle	Organization

Next Steps

Ecology has reviewed and considered the public comments received on the Remedial Investigation. Based on Ecology's evaluation of the comment, no changes were necessary in the documents, and they are being finalized.

Ecology will finalize the documents and proceed with the cleanup for this site. See graphic below and visit Ecology's cleanup process webpage[9] to learn more about Washington's formal cleanup process.

[6] https://georgetownbeer.com/
[7] https://apps.ecology.wa.gov/cleanupsearch/site/2520
[8] https://10ecology.wa.gov/Events/Search/Listing
[9] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process

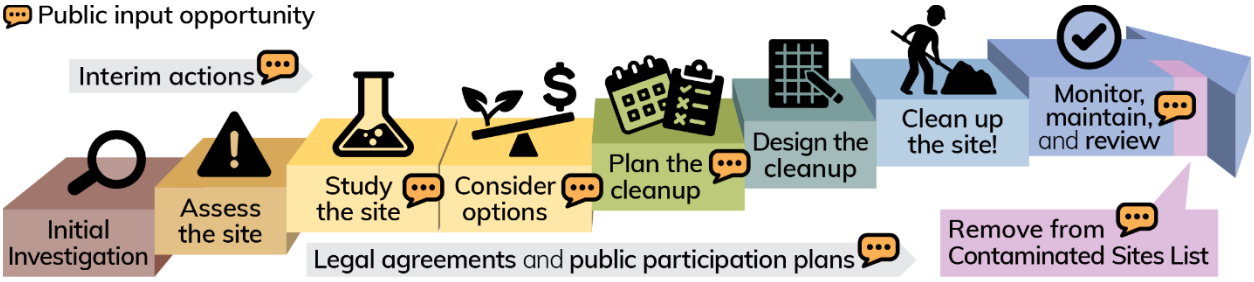

Figure 1: Washington's formal cleanup process

Comments and Responses

The public comments are presented below, along with Ecology's response. Appendix A, page 25 contains the comment in its original format.

Comment from: Jamie Hearn (Duwamish River Community Coalition)

[See original formatted comment letter attachment in Appendix A. The comment below has been divided into comment sections to better organize responses.]

Comment Section 1:

DUWAMISH RIVER
COMMUNITY COALITION

Elevating the voices of those impacted by the Duwamish River pollution and other environmental injustices to advocate for a clean, healthy, and equitable environment for people and wildlife. Promoting place-keeping and prioritizing community capacity and resilience.

Beau Johnson, Site Manager

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RE: Crowley Marine Service 8th Ave S. Remedial Investigation

Dear Mr. Johnson,

The Duwamish River Community Coalition (DRCC) has long been a community steward for environmental justice in the Duwamish Valley, which is one of the most polluted areas in the entire Pacific Northwest following 100 years of industrial dumping and release of toxic waste. DRCC has worked tirelessly alongside community groups and neighbors for 20 years to clean up the water, land and air while fighting to eliminate ongoing industrial pollution that makes our communities among the least healthy in the County.

Our MTCA work over the past several years has included engaging the community in creative ways such as through in-person gatherings, community events, and multilingual social media and video interactions to bring some of this information to the community and gather their input. We prioritize the voices of those who are directly impacted by these changes to ensure that our impacted low-income and black/indigenous/people of color immigrant, refugee, and fisher communities who already suffer the greatest exposures and health disparities can be meaningfully informed and engaged.

As we have expressed in previous comment letters, communities should be meaningfully engaged in decisions that will most heavily impact them. As community stewards, we are committed to keeping our community informed and ensuring that they access information in a way that allows them to provide their input. Unfortunately, DRCC did not receive an Ecology Public Participation Grant for 2023-2025 which means that we are no longer receiving funding to engage with our Environmental Justice community in a way that supports the type of engagement that we had been doing previously, including but not limited to: multilingual advertising and attending community meetings; sharing MTCA site details at community-hosted events with DRCC created materials; and detailed comment letters informed by thorough review of all site document with consultation by technical advisors. In light of this fact, Ecology can no longer rely solely on DRCC's community expertise and will need to conduct its own meaningful community engagement as part of the public participation process.

We include this background information in order to remain transparent as a community-based organization and as a request to the Department of Ecology to reevaluate the way their existing funding structures and reliance on overburdened communities and grassroot organizations to perform uncompensated labor is antithetical to principles of environmental justice and equity. With regard to DRCC's review of the Crowley Marine Remedial Investigation and associated documents, we offer this limited review:

Response Section 1:

Thank you for your comment.

Comment Section 2:

The data collected for this RI was collected between May 2013 to January 2015 and is more than ten years old. Much has changed in the past ten years, including but not limited to the passage of the HEAL Act (2021), revised MTCA regulations (2023), revised PCULs (Feb, 2024), and adaptation strategies to resilient remedies (2018). For example, WAC 173-340-350 (f) states that a report on climate conditions and how they may impact the resilience of the cleanup alternative should be addressed. WAC 173-340-350(j and k) states that the RI must address whether enough information has been collected to move on to an FS. Conditions may have changed since the last data collection effort, which may influence the development of alternatives. Given our concerns about the data age and changed conditions, we offer the following comments assuming that an FS is proceeding:

Lack of clarity around the site's connection to LDW site contamination and cleanup: Ecology should be clearer about Ecology's source control sufficiency strategy and its link to LDW site contamination, including how LDW cleanup connects to contamination from this site. The public is often confused about the difference between upland cleanup strategies and LDW sediment cleanup strategies.

Response Section 2:

Additional monitoring wells and samples have been collected in 2024 as part of the feasibility study (FS) process. The results will be included in the Public Review Draft FS Report that is expected in Q4 2024. A memorandum will be prepared to address the HEAL Act regulations and to support the RI. The FS will address revised MTCA regulations, any PCUL updates, and other applicable regulations.

Thank you for bringing attention to the ongoing communication challenges related to linking individual sites with the broader sediment cleanup through source control. We are continually reassessing our messaging to better explain this issue and provide clarity to the community. Our current plans include:

1. Ecology is in the process of evaluating middle reach sufficiency and updating the 2016 Source Control Strategy. Ecology anticipates 2025 public outreach opportunities for both of these efforts.
2. We are working on updating the text in our site fact sheets to better explain the connection to the EPA cleanup efforts, with the goal of improving community understanding.

Comment Section 3:

Data gaps in the RI: Due to data gaps in the RI, we request that Ecology:

- Conduct updated groundwater and storm drain sampling collection before alternatives are developed following WAC 173-340-351
- Address the degree/rate of flow through the seawall to determine the extent of exchange of contaminants through, under, and around the wall, in addition to potential erosion.
- Address the limited data available for benzyl alcohol in sediments given that the laboratory rejected the benzyl alcohol results for all of the samples from the sediment cores except core SSED-DB-12A.

Response Section 3:

Conduct updated groundwater and storm drain sampling collection before alternatives are developed following WAC 173-340-351.

Response: During the subsequent feasibility study (FS) process, three additional groundwater sampling events were conducted at the Site in August 2020, March 2024, and June 2024, and another event is planned for September 2024. The results of the 2020 groundwater sampling event will be included in the Public Review Draft FS Report and the results of the 2024

groundwater sampling events will be presented in an Addendum to the Public Review Draft FS Report.

Additional stormwater sampling is outside the scope of this RI. Stormwater source control for this property will be evaluated as part of the middle reach sufficiency effort in 2025.

Address the degree/rate of flow through the seawall to determine the extent of exchange of contaminants through, under, and around the wall, in addition to potential erosion.

Response: During the subsequent FS process, a steady-state groundwater model was developed for the Site in 2022 that evaluated the effects of the sheet pile seawall on groundwater flow. After slug tests were conducted at 14 selected monitoring wells to calculate Site-specific hydraulic conductivity values, the steady-state groundwater model was recently replaced with a transient groundwater model to better approximate the high-tide and low-tide conditions. Both models showed that the seawall is retarding the shallow groundwater flow, and most of the flow is diverted around the ends of the wall. There is some downward flow along the wall during low tide conditions. There is minimal groundwater flow through the limited number of small cracks and holes in the wall. The results of the steady-state groundwater model will be included in the Public Review Draft FS Report and the results of the transient groundwater model will be presented in the Addendum to the Public Review Draft FS Report.

Due to the presence of the sheet pile seawall and rip-rap along the waterway and the relatively flat ground surface of the 8th Avenue Terminals property that is primarily paved, soil erosion is considered an insignificant contaminant transport mechanism at the Site.

Address the limited data available for benzyl alcohol in sediments given that the laboratory rejected the benzyl alcohol results for all of the samples from the sediment cores except core SSED-DB-12A.

Response: Benzyl alcohol is identified as a Site chemical of concern (COC) for sediments; however, due to the complexities associated with the LDW Superfund Site, such as numerous contaminant sources and sediment mobility, the RI sediment data from the 8th Avenue Terminals Site were not evaluated for lateral and vertical extents of the COCs. Based on the RI sediment sample analytical results, the previous sediment dredging on the Subject Property, the extensive sediment sampling that has been conducted in the LDW and Slip 4, including on the Subject Property, and the EPA's planned remedial action for the LDW Superfund Site, Ecology believes that the surface and subsurface sediments have been adequately characterized for the RI.

Comment Section 4:

Groundwater movement considerations: The tidal influence on groundwater levels at the site could impact the cleanup process and source control to the Duwamish River. Given the wide variation in the groundwater elevation, as influenced by tides, the Feasibility Study will need to consider the potential for recontamination for any contaminants that can become mobile as the groundwater table rises. This is also true for volatile organic compounds such as PAHs that can volatilize as they become closer to the ground surface.

- The current site use prevents most movement of rainwater into the soil due to the amount of paving. Future use of the site assumes the same in the RI. However, in the case of the Boeing property to the south, a significant addition of habitat could impact the movement of contaminants in the soil into the river. If a future use includes habitat creation or restoration, additional evaluations will be needed to assess the movement of contaminated soil. Additionally, the pavement will need to be maintained in good to excellent condition to prevent the movement of rainwater in cracks and into the soil, which could result in the movement of existing contaminants through the soil and potentially into the river.

Response Section 4:

If the selected cleanup action does not remove all contamination, institutional controls will be part of the proposed remedy. Monitoring of site conditions, including pavement, would be a key component of the long-term monitoring for sites with institutional controls. Additionally, while there are currently no proposed plans for habitat restoration at the site, any significant land use change, such as a shift to a large habitat restoration project, would prompt a re-evaluation to ensure that the selected remedy remains sufficiently protective.

Comment Section 5:

Concerns with the seawall: The seawall currently contains contamination onsite, except where seeps and cracks exist. With the way contaminants are currently aggregating along the seawall and potential structural issues arising from cracks and seeps in the wall, it is critical to ensure ongoing source control for this site. DRCC advocates for more resilient and green forms of infrastructure as part of remediation work along the Duwamish. We also do not believe that seawalls contribute to restoring the environment, due to less water storage capacity during flood events due to sea level rise and climate change. Seawalls also do not improve or protect habitat for the river. Seawalls support an average of 23% lower biodiversity and 45% fewer organisms than natural shorelines.[10]

- The seawall is likely providing protection from sea level rise currently but will not be able to protect against rising groundwater tables associated with sea level rise. For this

[10] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5421310/

reason, given the site's sensitivity to changes in tidal conditions, the RI should further evaluate the data based on additional groundwater table rise combined with sea level rise on the potential distribution of contaminants across all media and in consideration of exposure.

- The FS should include more green remediation options that assess the feasibility of seawall removal as a part of the cleanup process, given that there are already existing cracks and seeps that will only be put under more stress as soil erosion and rising tides increase over time.

Response Section 5:

Thank you for your detailed comments and for highlighting the important issues related to the seawall and its impact on remediation efforts.

We understand the concerns about the seawall's current condition, including contamination, seeps, and cracks, and agree that ongoing source control is critical. Your advocacy for more resilient and green infrastructure solutions is noted, and the limitations of seawalls are important considerations.

We recognize that the challenges posed by the seawall are not solely about green technologies and building materials but also about adapting to climate change. The potential for rising groundwater tables due to sea level rise further complicates the situation.

Looking ahead to the Feasibility Study, climate change impacts will be considered as part of the scoring in the disproportionate cost analysis for each evaluated remedial technology. In contrast, our regulations do not allow for a consideration of green remediation as part of this scoring, so those factors will not be evaluated in the same manner (For additional discussion on this distinction, see Concise Explanatory Statement question 42.) That does not mean there are not opportunities to collaborate with the Potentially Liable Parties (PLPs) to explore alternative remediation strategies as we continue through the cleanup process. This could include evaluating green remediation options and considering the feasibility of seawall removal or other adaptive measures.

Thank you for your valuable input and for helping us refine our approach to address both the environmental and climate change challenges associated with this site.

Comment Section 6:

Using existing guidance and resources on climate change impacts on remediation sites: The state of Washington developed guidance in 2018, Adaptation Strategies for Resilient Remedies. The guidance is intended to: 1) help understand site-specific vulnerabilities of cleanup sites to climate change impacts and 2) provide recommendations to increase the resilience of remedies at each cleanup phase. The WA DOE guidance also includes examples of vulnerability analyses,

a list of references, and links to different technologies, adaptation plans, decision tools, case studies, and sustainable remediation resources.[11]

- Revised MTCA (WAC 173-340) regulations call for attention to climate change at MTCA clean up sites. We request that all MTCA cleanup sites in the Duwamish Valley follow Sustainable Remediation: Climate Resiliency/Green Remediation Guidance (Ecology Publication No 17-09-052), and conduct Climate Change Vulnerability Assessments (CCVA). We ask that the Feasibility Study follow the Sustainable Remediation Guidance and that the CCVA be fully presented.

Response Section 6:

Thank you for your thorough comments and for highlighting the relevant guidance and resources on climate change impacts for remediation sites. Ecology's Sustainable Remediation: Climate Resiliency/Green Remediation Guidance is what we prefer to be used to evaluate climate change impacts at all sites. It is not specifically named in MTCA because Ecology's experience is that naming a specific guidance in the rule language makes it difficult to update that guidance to be in line with the best available science.

The Feasibility Study is required to include a discussion of climate change impacts and how they would affect both the overall protectiveness and long-term effectiveness of each remedial technology evaluated. A CCVA will be conducted as part of that evaluation for this site and included in the Feasibility Study.

Our goal is to ensure that our cleanup processes are both effective and resilient in the face of climate change. Your insights and recommendations will be an important part of this evaluation process as we strive to enhance our approach to sustainable and climate-resilient remediation. Thank you for your input and for helping to guide these important considerations.

Comment Section 7:

Accounting for sea level rise: Most of the Lower Duwamish River Valley in Seattle, Washington, is less than 20 feet above sea level; consequently, the river valley is prone to flooding during high tides, extreme rainfall, and high streamflow. In addition, groundwater inundation—localized coastal flooding due to a rise of the groundwater table with global sea-level rise—may compound flooding issues in the area. Ecology should use existing studies such as the City of Seattle's report titled "Preparing for Climate Change," Puget Sound Partnership's "State of Knowledge: Climate Change in Puget Sound," and the "South Park Sea Level Rise Adaptation Vision Summary" by Seattle Public Utilities and the Office of Planning and Community Development.

[11] Washington State Department of Ecology (Washington DOE), Toxics Cleanup Program. 2017. Adaptation strategies for resilient cleanup remedies: A guide for cleanup project managers to increase the resilience of toxic cleanup sites to the impacts from climate change. Publication No. 17-09-052.

- We recommend an adaptive pathways approach whereby the cleanup work could be phased such that the remedial design considers these impacts as they are expected to occur. For instance, if the site design is anticipated to last 30 years, the climate resilience strategy should include actions to address any anticipated change occurring by 2050. Further, the 5-year review and monitoring plan could include assessing recent climate data and information. Review of Draft Remedial Investigation for 8th Avenue Terminals, Inc./Crowley Marine Site 14 and make revisions to the design, as needed. By implementing a phased approach, there is a cost efficiency and opportunity to use the best available science.

Response Section 7:

Thank you for your comments on accounting for sea level rise in the Lower Duwamish River Valley.

We recognize the significant challenges posed by the area's low elevation and the potential for increased flooding and groundwater inundation due to sea level rise. The studies you mentioned—such as the City of Seattle's "Preparing for Climate Change," Puget Sound Partnership's "State of Knowledge: Climate Change in Puget Sound," and the "South Park Sea Level Rise Adaptation Vision Summary"—offer valuable insights into these issues and will be consulted in our planning.

To address climate change effectively, we will explore how to incorporate findings from these studies into our remediation strategies. This includes evaluating the potential impacts of sea level rise and increased flooding on the site and how these factors could influence the long-term effectiveness of remediation measures.

We will consider the feasibility of implementing an adaptive pathways approach, which could involve phasing the cleanup work to accommodate expected climate impacts over time. This approach would help ensure that the remedial design remains resilient and effective as conditions change.

While we cannot commit to specific changes at this moment, we assure you that these considerations will be part of our ongoing evaluation process. Your input is valuable as we work to develop a robust and adaptive remediation strategy that addresses both current and future climate impacts.

Thank you for your contribution to this important aspect of our planning.

Comment Section 8:

Incorporating environmental justice considerations by complying with HEAL Act: For the next stage of the MTCA process, Feasibility Studies should include an environmental justice analysis, especially for MTCA sites in overburdened communities, as required by the HEAL Act. Ecology should explain in detail in that document how the Healthy Environment For All (HEAL) Act informed and guided the creation of the FS as mandated by law. Additionally, the Department

of Ecology should provide examples of how planning for this site meaningfully prioritizes vulnerable environmental justice communities outlined in the HEAL Act, which were absent from previous site plans created prior to the passage and implementation of the Act.

We appreciate this opportunity to provide comments. Please do not hesitate to contact us if you have any questions.

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Response Section 8:

For an individual cleanup site, a consideration of impacts on environmental justice communities (in MTCA, overburdened communities and vulnerable populations) is required at multiple steps in the cleanup process – the Remedial Investigation, Feasibility Study, and Cleanup Action Plan. Since the draft Remedial Investigation was completed for this site before that requirement was instituted, this evaluation will be documented in a memorandum to supplement the Remedial Investigation. The draft Feasibility Study will include an evaluation of impacts to overburdened communities and vulnerable populations for each cleanup action alternative evaluated when it is out for public comment.

Comment from: Jill Macik (City of Seattle)

[See original formatted comment letter attachment in Appendix A. The comment below has been divided into comment sections to better organize responses.]

Comment Section 1a:

June 18, 2024

Mr. Beau Johnson
Site Manager
Washington State Department of Ecology

Dear Mr. Johnson,

Thank you for the opportunity to review and provide comment on the draft Remedial Investigation (RI) for the Crowley Marine Services 8th Ave S Site (Cleanup Site ID 2520) (the Site). We have reviewed the draft RI, and the City disagrees with the assertion that "based on the results of the RI, the Site data (a combination of historical data and RI data) are of sufficient quantity and quality to characterize the nature and extent of the Site-related chemicals" due to data gaps concerning potential Site impacts on the adjacent City right-of-way (ROW). Below, we provide further detail on the identified data gaps, and provide recommendations and requests to further delineate Site releases impacting City ROW.

1. **Site releases associated with the historic sand blast grit dump area**: The draft RI discusses a historic sand blast grit dump area, and the approximate dump site and location of sand blasting are shown in Figures 13 and 3, respectively. While the draft RI shows some sediment sampling performed in the general area of the sand blast grit dump site, the draft RI does not identify soil samples in the area where the potential historic sand blast grit dump overlaps the upland ROW. This data gap should be addressed because ROW sampling could demonstrate Site releases of hazardous substances impacting City ROW. The City requests additional upland sampling for contaminants associated with the historic sand blast grit be performed in the upland portion of the City's ROW where the dump area is estimated to be located.
    a. The City performed a Phase II ESA (2023) in the ROW which detected various metals in an area that overlaps the potential historic sand blast grit dump site. These metals included arsenic and lead, which the draft RI identifies as IHSs for the Site.
    b. The draft RI Executive Summary acknowledges that lateral extents of Site arsenic contamination (in addition to other IHSs), specifically the western extents, have not been delineated: "The lateral and vertical extents of each of the soil IHSs have been delineated, except for the western extents of arsenic, total PCBs, and total D/F TEQ at the western part of Parcel D (at locations near the western border of the Subject Property)…"
    c. Under Section 7.4, the draft RI states that

> The area with the greatest arsenic concentrations occurs in the former pipe and chain manufacturing area (including the sandblast area along the property's southern shoreline)…

However, the draft RI includes no soil samples in the sandblast area to identify the extent of contamination that may exist in the City ROW. Figures 21-23 show the potential for Site releases of arsenic in the ROW, but no sampling has been performed to confirm.

Response Section 1a:

The text and Figure 13 of the Public Review Draft RI Report discuss a possible historical sand blast grit dump area on the bank and within the adjacent waterway near the 8th Avenue Terminals property; however, there has been no direct evidence that the dumping actually occurred. Targeted sediment sampling was conducted at that area during the RI, and the metals concentrations in the surface and subsurface sediment samples were low and did not indicate any evidence of sand blast grit. In 2022 and 2023, HWA GeoSciences, Inc. (HWA) conducted a Phase II environmental site assessment (ESA) at Gateway Park, including at the upland portion of the possible historical sand blast grit dump area, and based on a review of HWA's soil boring logs, sand blast grit was not observed in any of the soil samples. According to HWA's Figure 3 of their report, the upland portion of the possible historical sand blast grit dump area currently consists of a steep bank that is not accessible or safe to occupy. Based on the available information and data, Ecology does not believe that 8th Avenue Terminals, Inc., should conduct any additional investigation activities associated with the possible historical sand blast grit area or within the City right-of-way (ROW).

Comment Section 2a:

1. **Site releases impacting soils in City ROW**: The draft RI shows multiple potential Site releases impacting soils in City ROW; however, the draft RI includes only one soil sampling location in City ROW: EB-56. Generally the extents of site-related chemicals are delineated with more than a single soil sample. What is the reasoning behind delineating the Site-related chemicals here with a single soil sample of the adjacent City ROW?

    a. Figures 33-35 show the Site releases of vinyl chloride impacting City ROW. Section 7.4, pages 61-62, states:

    > There were no detected vinyl chloride concentrations greater than the Screening level (see Figures 34 and 35). Since vinyl chloride is only retained as a soil COC because it is a groundwater COC, SLR also evaluated the concentrations below the screening level. There are no detected vinyl chloride concentrations greater than 0.1 mg/kg at the Subject Property. There are only localized areas of vinyl chloride in the

groundwater at concentrations greater than the screening level, and there are no detected soil concentrations in those areas.

The draft RI does not indicate any soil sampling in City ROW to determine the presence of vinyl chloride. The City requests soil sampling for vinyl chloride to determine extents of Site releases potentially impacting City ROW.

b. Figures 36-38 show Site releases of Total CPAHs TEQ impacting City ROW. Section 7.4 page 62 of the draft RI states "The lateral extents of the total cPAH TEQ concentrations greater than the screening level have been delineated." Did that determination include sampling in City ROW to determine the presence of CPAHs TEQ? If not, the City requests soil sampling in City ROW to delineate extent of total CPAHs TEQ impacting City ROW.

c. Figures 39-41 show Site releases of total Dioxins/Furans TEQ impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total D/F TEQ concentrations greater than the screening level have been delineated, except to the west of borings EB-34 and EB-42 (near the western border of the Subject Property) and to the southwest of EB-42." The City requests soil sampling in City ROW to delineate the extent of D/F TEQ Site releases impacting City ROW.

d. Figures 42-44 show Site releases of total PCBs impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total PCB concentrations greater than the screening level have been delineated, except at boring DB12 (near the western border of the Subject Property) at a depth below 6 feet bgs (see Figure 43)." The City requests additional soil sampling in City ROW west of DB12 to determine lateral extents of Site PCB releases.

e. Figures 45-47 show Site releases of total semi-volatile petroleum hydrocarbons (DRO + ORO) impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total semi-volatile petroleum hydrocarbon concentrations greater than the screening level have been delineated." How was this determined without further soil sampling in City ROW?

Response Section 2a:

The primary potential transport mechanism for contamination from the 8th Avenue Terminals Site to be present in the soil and/or groundwater beneath the City ROW would be impacted groundwater migration. Two groundwater monitoring wells (EMW-17S and EMW-18S) were installed within a vehicle parking area of the 8th Avenue South ROW, to the north of Gateway Park, to assess and monitor the groundwater conditions. The locations of EMW-17S and EMW-18S are shown on the attached Figure 1. During the RI, groundwater samples were collected from EMW-17S and EMW-18S in 2014, and the groundwater samples from those wells did not contain groundwater COC concentrations greater than the screening levels, except for a total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) toxicity equivalency (TEQ) concentration

in a 2014 sample from EMW-17S that exceeded the screening level. During the subsequent FS process, groundwater samples have been collected from EMW-17S and EMW-18S in August 2020, March 2024, and June 2024. Additional samples will be collected from the wells in September 2024. The results of the 2020 groundwater sampling will be included in the Public Review Draft FS Report and the results of the 2024 groundwater sampling will be presented in the Addendum to the Public Review Draft FS Report.

In March 2024, a shallow groundwater monitoring well (EMW-23S) was drilled and installed in the City ROW, just north of Gateway Park, to assess the off-property soil and groundwater conditions at that area. The location of EMW-23S is shown on the attached Figure 1. During drilling, a soil sample was collected for laboratory analysis. Groundwater samples were collected from EMW-23S in March and June 2024, and another sampling event will be conducted in September 2024. The results of the 2024 soil sampling and groundwater monitoring activities will be presented in the Addendum to the Public Review Draft FS Report.

In 2020, additional investigation activities were conducted during the FS to further delineate the western extents of the impacted soil at the Site. A soil boring (SSB-1) was drilled and sampled within a vehicle parking area of the 8th Avenue South ROW, and five soil borings (SSB-2, SSB-3, SSB-5, SSB-7, and SSB-19) were drilled and sampled at locations within 65 feet of the western boundary of the 8th Avenue Terminals property. The locations of the borings are shown on the attached Figure 1. The results of the 2020 additional investigation activities will be presented in the Public Review Draft FS Report.

Comment Section 3a:

1. **Site releases impacting groundwater in City ROW:** The draft RI shows multiple potential Site releases impacting groundwater in City ROW; however, the draft RI includes only four groundwater monitoring wells in City ROW: EMW-11S, EMW-12S, EMW-17S, and EMW-18S. Please provide the reasoning behind delineating Site-related chemicals with this limited groundwater sampling of the City ROW.
    a. The draft RI states that shallow groundwater flows around the seawall in the SW corner during low tide (Figure 14), but no wells are installed to sample shallow water in this location off property to the SW. The City recommends a shallow groundwater well in City ROW to monitor potential offsite flow of contaminants during the next investigation phase.
    b. Figures 51-53 show Site releases of dissolved arsenic concentrations in groundwater impacting City ROW. Section 7.5 of the draft RI acknowledges on page 64 that for dissolved arsenic concentrations "the vertical extent has been delineated" but "lateral extents of the dissolved arsenic concentrations greater than the screening level, after analysis by ICP-DRC-MS, have been delineated at the Site, except to the west of well HC-20 (near the western border of the Subject Property." City ROW is located immediately adjacent (to the west) of Well HC-20. The City requests further sampling in City ROW to determine the lateral extents of dissolved arsenic concentrations impacting City ROW. The draft

RI mentions not delineating the lateral extent of dissolved arsenic in groundwater west of the property in shallow groundwater zone (pg. 64). The City recommends additional groundwater sampling along the western boundaries to delineate shallow groundwater plume.

c. Figures 56-60 show Site releases of dissolved copper in groundwater impacting City ROW. The draft RI acknowledges that sampling results may be affected by brackish groundwater, and to evaluate that potential, the September and October 2013 groundwater samples were analyzed for dissolved copper by ICP-DRC-MS. Even considering the effect of the brackish groundwater, the draft RI shows potential Site releases of dissolved copper impacting City ROW (Figure 57). The City recommends additional groundwater sampling for dissolved copper along the western boundaries to delineate shallow groundwater plume.
d. Figure 64 shows Site concentrations of cPAHs TEQ impacting City ROW. Concentrations in EM-18s in City ROW indicate concentrations more than ten times the screening level. Section 7.5 page 65 states that the lateral extents of cPAHs TEQ concentrations have been delineated. How were the lateral extents of concentrations impacting City ROW determined with limited groundwater sampling in City ROW?
e. Figures 67-69 show Site releases of total PCBs in groundwater impacting City ROW. In Section 7.5 page 65, the draft RI states that "the lateral extents of the total PCB concentrations greater than the screening level have been delineated at the Site." How were the lateral extents of concentrations impacting City ROW determined with limited groundwater sampling in City ROW?

f. The City did not identify in the draft RI discussion of sampling total semi-volatile petroleum hydrocarbons (DRO + ORO) in groundwater. Was such sampling performed? If not, why not? Table 18d indicates concentrations of petroleum hydrocarbons in groundwater at DMW-3 exceeding screening levels, but the City did not identify discussion of this in text or figures. How were vertical and lateral extents for Site releases for this COC determined?

Response Section 3a:

As described in the response above to Comment Section 2a, groundwater samples have been collected from the three groundwater monitoring wells in the City ROW in 2020 and/or 2024. In addition, groundwater samples have been collected during the RI and subsequent to the RI from four shallow groundwater monitoring wells (EMW-7S, EMW-11S, EMW-12S, and HC-20) located within 35 feet of the western boundary of the 8th Avenue Terminals property. To evaluate the groundwater conditions that are flowing around the western end of the sheet pile seawall, groundwater samples also have been collected from shallow wells CMW-7 and EMW-12S, from intermediate-depth well EMW-16D, and from deep well EMW-21D. The locations of EMW-7S, EMW-11S, EMW-12S, HC-20, CMW-7, EMW-16D, and EMW-21D are shown on the attached Figure 1. The results of the 2020 groundwater sampling will be included in the Public

Review Draft FS Report and the results of the 2024 groundwater sampling will be presented in the Addendum to the Public Review Draft FS Report.

Ecology believes that the current groundwater monitoring well network is sufficient to assess the potential migration of groundwater contaminants onto the City ROW.

Comment Section 4a:

1. We were not able to locate the draft RI Appendix D, Field Logs and Sampling Details. Can this document please be made available for review?

The City believes that further investigation is needed to determine the extents of Site releases for multiple Site IHSs impacting City ROW. Please let us know if you have any questions, and we look forward to further coordination as the clean-up process continues.

Thank you again for the opportunity to review.

Sincerely,

Jill Macik
Environmental Manager, Capital Projects Division
Seattle Department of Transportation

CC: Joey Aitken, Seattle Department of Transportation
Allison Crowley, Seattle City Light
Karsten Springstead, Seattle Parks and Recreation

Response Section 4a:

Appendix D has been uploaded to the site page and made available for review on Ecology's cleanup progress website. Thank you for your comments.

Appendices

Appendix A. Public comments in original format

Appendix B. Figure 1

Appendix A. Public comments in original format

DUWAMISH RIVER
COMMUNITY COALITION

Elevating the voices of those impacted by the Duwamish River pollution and other environmental injustices to advocate for a clean, healthy, and equitable environment for people and wildlife. Promoting place-keeping and prioritizing community capacity and resilience.

Beau Johnson, Site Manager
PO Box 330316
Shoreline, WA 98133-9716
(206) 638-0816
beau.johnson@ecy.wa.gov

RE: Crowley Marine Service 8th Ave S. Remedial Investigation

Dear Mr. Johnson,

The Duwamish River Community Coalition (DRCC) has long been a community steward for environmental justice in the Duwamish Valley, which is one of the most polluted areas in the entire Pacific Northwest following 100 years of industrial dumping and release of toxic waste. DRCC has worked tirelessly alongside community groups and neighbors for 20 years to clean up the water, land and air while fighting to eliminate ongoing industrial pollution that makes our communities among the least healthy in the County.

Our MTCA work over the past several years has included engaging the community in creative ways such as through in-person gatherings, community events, and multilingual social media and video interactions to bring some of this information to the community and gather their input. We prioritize the voices of those who are directly impacted by these changes to ensure that our impacted low-income and black/indigenous/people of color immigrant, refugee, and fisher communities who already suffer the greatest exposures and health disparities can be meaningfully informed and engaged.

As we have expressed in previous comment letters, communities should be meaningfully engaged in decisions that will most heavily impact them. As community stewards, we are committed to keeping our community informed and ensuring that they access information in a way that allows them to provide their input. Unfortunately, DRCC did not receive an Ecology Public Participation Grant for 2023-2025 which means that we are no longer receiving funding to engage with our Environmental Justice community in a way that supports the type of

engagement that we had been doing previously, including but not limited to: multilingual advertising and attending community meetings; sharing MTCA site details at community-hosted events with DRCC created materials; and detailed comment letters informed by thorough review of all site document with consultation by technical advisors. In light of this fact, Ecology can no longer rely solely on DRCC's community expertise and will need to conduct its own meaningful community engagement as part of the public participation process.

We include this background information in order to remain transparent as a community-based organization and as a request to the Department of Ecology to reevaluate the way their existing funding structures and reliance on overburdened communities and grassroot organizations to perform uncompensated labor is antithetical to principles of environmental justice and equity. With regard to DRCC's review of the Crowley Marine Remedial Investigation and associated documents, we offer this limited review:

The data collected for this RI was collected between May 2013 to January 2015 and is more than ten years old. Much has changed in the past ten years, including but not limited to the passage of the HEAL Act (2021), revised MTCA regulations (2023), revised PCULs (Feb, 2024), and adaptation strategies to resilient remedies (2018). For example, WAC 173-340-350 (f) states that a report on climate conditions and how they may impact the resilience of the cleanup alternative should be addressed. WAC 173-340-350(j and k) states that the RI must address whether enough information has been collected to move on to an FS. Conditions may have changed since the last data collection effort, which may influence the development of alternatives. Given our concerns about the data age and changed conditions, we offer the following comments assuming that an FS is proceeding:

- Lack of clarity around the site's connection to LDW site contamination and cleanup: Ecology should be clearer about Ecology's source control sufficiency strategy and its link to LDW site contamination, including how LDW cleanup connects to contamination from this site. The public is often confused about the difference between upland cleanup strategies and LDW sediment cleanup strategies.

- Data gaps in the RI: Due to data gaps in the RI, we request that Ecology:
    - Conduct updated groundwater and storm drain sampling collection before alternatives are developed following WAC 173-340-351
    - Address the degree/rate of flow through the seawall to determine the extent of exchange of contaminants through, under, and around the wall, in addition to potential erosion.
    - Address the limited data available for benzyl alcohol in sediments given that the laboratory rejected the benzyl alcohol results for all of the samples from the sediment cores except core SSED-DB-12A.

- Groundwater movement considerations: The tidal influence on groundwater levels at the site could impact the cleanup process and source control to the Duwamish River. Given the wide variation in the groundwater elevation, as influenced by tides, the Feasibility Study will need to consider the potential for recontamination for any contaminants that can become mobile as the groundwater table rises. This is also true for volatile organic compounds such as PAHs that can volatilize as they become closer to the ground surface.
    - The current site use prevents most movement of rainwater into the soil due to the amount of paving. Future use of the site assumes the same in the RI. However, in the case of the Boeing property to the south, a significant addition of habitat could impact the movement of contaminants in the soil into the river. If a future use includes habitat creation or restoration, additional evaluations will be needed to assess the movement of contaminated soil. Additionally, the pavement will need to be maintained in good to excellent condition to prevent the movement of rainwater in cracks and into the soil, which could result in the movement of existing contaminants through the soil and potentially into the river.

- Concerns with the seawall: The seawall currently contains contamination onsite, except where seeps and cracks exist. With the way contaminants are currently aggregating along the seawall and potential structural issues arising from cracks and seeps in the wall, it is critical to ensure ongoing source control for this site. DRCC advocates for more resilient and green forms of infrastructure as part of remediation work along the Duwamish. We also do not believe that seawalls contribute to restoring the environment, due to less water storage capacity during flood events due to sea level rise and climate change. Seawalls also do not improve or protect habitat for the river. Seawalls support an average of 23% lower biodiversity and 45% fewer organisms than natural shorelines.[1]
    - The seawall is likely providing protection from sea level rise currently but will not be able to protect against rising groundwater tables associated with sea level rise. For this reason, given the site's sensitivity to changes in tidal conditions, the RI should further evaluate the data based on additional groundwater table rise combined with sea level rise on the potential distribution of contaminants across all media and in consideration of exposure.
    - The FS should include more green remediation options that assess the feasibility of seawall removal as a part of the cleanup process, given that there are already existing cracks and seeps that will only be put under more stress as soil erosion and rising tides increase over time.

- Using existing guidance and resources on climate change impacts on remediation sites: The state of Washington developed guidance in 2018, Adaptation Strategies for Resilient Remedies. The guidance is intended to: 1) help understand site-specific vulnerabilities of

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5421310/

cleanup sites to climate change impacts and 2) provide recommendations to increase the resilience of remedies at each cleanup phase. The WA DOE guidance also includes examples of vulnerability analyses, a list of references, and links to different technologies, adaptation plans, decision tools, case studies, and sustainable remediation resources.[2]

    - Revised MTCA (WAC 173-340) regulations call for attention to climate change at MTCA clean up sites. We request that all MTCA cleanup sites in the Duwamish Valley follow Sustainable Remediation: Climate Resiliency/Green Remediation Guidance (Ecology Publication No 17-09-052), and conduct Climate Change Vulnerability Assessments (CCVA). We ask that the Feasibility Study follow the Sustainable Remediation Guidance and that the CCVA be fully presented.

- Accounting for sea level rise: Most of the Lower Duwamish River Valley in Seattle, Washington, is less than 20 feet above sea level; consequently, the river valley is prone to flooding during high tides, extreme rainfall, and high streamflow. In addition, groundwater inundation—localized coastal flooding due to a rise of the groundwater table with global sea-level rise—may compound flooding issues in the area. Ecology should use existing studies such as the City of Seattle's report titled "Preparing for Climate Change," Puget Sound Partnership's "State of Knowledge: Climate Change in Puget Sound," and the "South Park Sea Level Rise Adaptation Vision Summary" by Seattle Public Utilities and the Office of Planning and Community Development.
    - We recommend an adaptive pathways approach whereby the cleanup work could be phased such that the remedial design considers these impacts as they are expected to occur. For instance, if the site design is anticipated to last 30 years, the climate resilience strategy should include actions to address any anticipated change occurring by 2050. Further, the 5-year review and monitoring plan could include assessing recent climate data and information. Review of Draft Remedial Investigation for 8th Avenue Terminals, Inc./Crowley Marine Site 14 and make revisions to the design, as needed. By implementing a phased approach, there is a cost efficiency and opportunity to use the best available science.

- Incorporating environmental justice considerations by complying with HEAL Act: For the next stage of the MTCA process, Feasibility Studies should include an environmental justice analysis, especially for MTCA sites in overburdened communities, as required by the HEAL Act. Ecology should explain in detail in that document how the Healthy Environment For All (HEAL) Act informed and guided the creation of the FS as mandated by law. Additionally, the Department of Ecology should provide examples of how planning for this site meaningfully prioritizes vulnerable environmental justice

[2]Washington State Department of Ecology (Washington DOE), Toxics Cleanup Program. 2017. Adaptation strategies for resilient cleanup remedies: A guide for cleanup project managers to increase the resilience of toxic cleanup sites to the impacts from climate change. Publication No. 17-09-052.

communities outlined in the HEAL Act, which were absent from previous site plans created prior to the passage and implementation of the Act.

We appreciate this opportunity to provide comments. Please do not hesitate to contact us if you have any questions.

Jamie Hearn
Director of Environmental Law and Climate Policy
Duwamish River Community Coalition
jamie@drcc.org

Seattle Department of Transportation

June 18, 2024

Mr. Beau Johnson
Site Manager
Washington State Department of Ecology

Dear Mr. Johnson,

Thank you for the opportunity to review and provide comment on the draft Remedial Investigation (RI) for the Crowley Marine Services 8th Ave S Site (Cleanup Site ID 2520) (the Site). We have reviewed the draft RI, and the City disagrees with the assertion that "based on the results of the RI, the Site data (a combination of historical data and RI data) are of sufficient quantity and quality to characterize the nature and extent of the Site-related chemicals" due to data gaps concerning potential Site impacts on the adjacent City right-of-way (ROW). Below, we provide further detail on the identified data gaps, and provide recommendations and requests to further delineate Site releases impacting City ROW.

1. **Site releases associated with the historic sand blast grit dump area**: The draft RI discusses a historic sand blast grit dump area, and the approximate dump site and location of sand blasting are shown in Figures 13 and 3, respectively. While the draft RI shows some sediment sampling performed in the general area of the sand blast grit dump site, the draft RI does not identify soil samples in the area where the potential historic sand blast grit dump overlaps the upland ROW. This data gap should be addressed because ROW sampling could demonstrate Site releases of hazardous substances impacting City ROW. The City requests additional upland sampling for contaminants associated with the historic sand blast grit be performed in the upland portion of the City's ROW where the dump area is estimated to be located.
    a. The City performed a Phase II ESA (2023) in the ROW which detected various metals in an area that overlaps the potential historic sand blast grit dump site. These metals included arsenic and lead, which the draft RI identifies as IHSs for the Site.
    b. The draft RI Executive Summary acknowledges that lateral extents of Site arsenic contamination (in addition to other IHSs), specifically the western extents, have not been delineated: "The lateral and vertical extents of each of the soil IHSs have been delineated, except for the western extents of arsenic, total PCBs, and total D/F TEQ at the western part of Parcel D (at locations near the western border of the Subject Property)…"
    c. Under Section 7.4, the draft RI states that

> The area with the greatest arsenic concentrations occurs in the former pipe and chain manufacturing area (including the sandblast area along the property's southern shoreline)…

However, the draft RI includes no soil samples in the sandblast area to identify the extent of contamination that may exist in the City ROW. Figures 21-23 show

the potential for Site releases of arsenic in the ROW, but no sampling has been performed to confirm.

2. **Site releases impacting soils in City ROW**: The draft RI shows multiple potential Site releases impacting soils in City ROW; however, the draft RI includes only one soil sampling location in City ROW: EB-56. Generally the extents of site-related chemicals are delineated with more than a single soil sample. What is the reasoning behind delineating the Site-related chemicals here with a single soil sample of the adjacent City ROW?
    a. Figures 33-35 show the Site releases of vinyl chloride impacting City ROW. Section 7.4, pages 61-62, states:
        > There were no detected vinyl chloride concentrations greater than the Screening level (see Figures 34 and 35). Since vinyl chloride is only retained as a soil COC because it is a groundwater COC, SLR also evaluated the concentrations below the screening level. There are no detected vinyl chloride concentrations greater than 0.1 mg/kg at the Subject Property. There are only localized areas of vinyl chloride in the groundwater at concentrations greater than the screening level, and there are no detected soil concentrations in those areas.

        The draft RI does not indicate any soil sampling in City ROW to determine the presence of vinyl chloride. The City requests soil sampling for vinyl chloride to determine extents of Site releases potentially impacting City ROW.
    b. Figures 36-38 show Site releases of Total CPAHs TEQ impacting City ROW. Section 7.4 page 62 of the draft RI states "The lateral extents of the total cPAH TEQ concentrations greater than the screening level have been delineated." Did that determination include sampling in City ROW to determine the presence of CPAHs TEQ? If not, the City requests soil sampling in City ROW to delineate extent of total CPAHs TEQ impacting City ROW.
    c. Figures 39-41 show Site releases of total Dioxins/Furans TEQ impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total D/F TEQ concentrations greater than the screening level have been delineated, except to the west of borings EB-34 and EB-42 (near the western border of the Subject Property) and to the southwest of EB-42." The City requests soil sampling in City ROW to delineate the extent of D/F TEQ Site releases impacting City ROW.
    d. Figures 42-44 show Site releases of total PCBs impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total PCB concentrations greater than the screening level have been delineated, except at boring DB12 (near the western border of the Subject Property) at a depth below 6 feet bgs (see Figure 43)." The City requests additional soil sampling in City ROW west of DB12 to determine lateral extents of Site PCB releases.
    e. Figures 45-47 show Site releases of total semi-volatile petroleum hydrocarbons (DRO + ORO) impacting City ROW. Section 7.4 page 62 of the draft RI states that "The lateral extents of the total semi-volatile petroleum hydrocarbon

concentrations greater than the screening level have been delineated." How was this determined without further soil sampling in City ROW?

3. **Site releases impacting groundwater in City ROW:** The draft RI shows multiple potential Site releases impacting groundwater in City ROW; however, the draft RI includes only four groundwater monitoring wells in City ROW: EMW-11S, EMW-12S, EMW-17S, and EMW-18S. Please provide the reasoning behind delineating Site-related chemicals with this limited groundwater sampling of the City ROW.
    a. The draft RI states that shallow groundwater flows around the seawall in the SW corner during low tide (Figure 14), but no wells are installed to sample shallow water in this location off property to the SW. The City recommends a shallow groundwater well in City ROW to monitor potential offsite flow of contaminants during the next investigation phase.
    b. Figures 51-53 show Site releases of dissolved arsenic concentrations in groundwater impacting City ROW. Section 7.5 of the draft RI acknowledges on page 64 that for dissolved arsenic concentrations "the vertical extent has been delineated" but "lateral extents of the dissolved arsenic concentrations greater than the screening level, after analysis by ICP-DRC-MS, have been delineated at the Site, except to the west of well HC-20 (near the western border of the Subject Property." City ROW is located immediately adjacent (to the west) of Well HC-20. The City requests further sampling in City ROW to determine the lateral extents of dissolved arsenic concentrations impacting City ROW. The draft RI mentions not delineating the lateral extent of dissolved arsenic in groundwater west of the property in shallow groundwater zone (pg. 64). The City recommends additional groundwater sampling along the western boundaries to delineate shallow groundwater plume.
    c. Figures 56-60 show Site releases of dissolved copper in groundwater impacting City ROW. The draft RI acknowledges that sampling results may be affected by brackish groundwater, and to evaluate that potential, the September and October 2013 groundwater samples were analyzed for dissolved copper by ICP-DRC-MS. Even considering the effect of the brackish groundwater, the draft RI shows potential Site releases of dissolved copper impacting City ROW (Figure 57). The City recommends additional groundwater sampling for dissolved copper along the western boundaries to delineate shallow groundwater plume.
    d. Figure 64 shows Site concentrations of cPAHs TEQ impacting City ROW. Concentrations in EM-18s in City ROW indicate concentrations more than ten times the screening level. Section 7.5 page 65 states that the lateral extents of cPAHs TEQ concentrations have been delineated. How were the lateral extents of concentrations impacting City ROW determined with limited groundwater sampling in City ROW?
    e. Figures 67-69 show Site releases of total PCBs in groundwater impacting City ROW. In Section 7.5 page 65, the draft RI states that "the lateral extents of the total PCB concentrations greater than the screening level have been delineated

at the Site." How were the lateral extents of concentrations impacting City ROW determined with limited groundwater sampling in City ROW?

f. The City did not identify in the draft RI discussion of sampling total semi-volatile petroleum hydrocarbons (DRO + ORO) in groundwater. Was such sampling performed? If not, why not? Table 18d indicates concentrations of petroleum hydrocarbons in groundwater at DMW-3 exceeding screening levels, but the City did not identify discussion of this in text or figures. How were vertical and lateral extents for Site releases for this COC determined?

4. We were not able to locate the draft RI Appendix D, Field Logs and Sampling Details. Can this document please be made available for review?

The City believes that further investigation is needed to determine the extents of Site releases for multiple Site IHSs impacting City ROW. Please let us know if you have any questions, and we look forward to further coordination as the clean-up process continues.

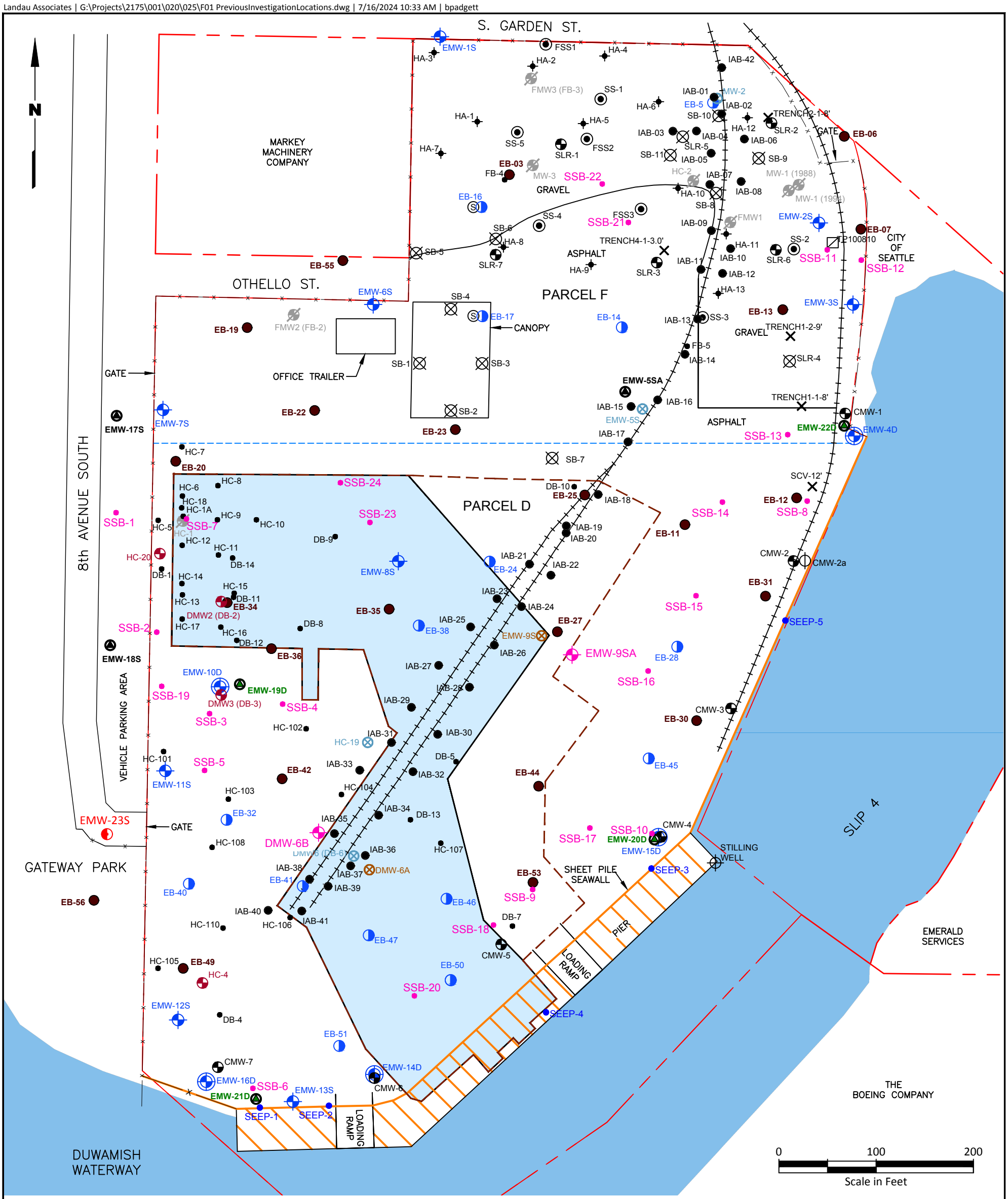
Thank you again for the opportunity to review.

Sincerely,

Jill Macik
Environmental Manager, Capital Projects Division
Seattle Department of Transportation

CC: Joey Aitken, Seattle Department of Transportation
Allison Crowley, Seattle City Light
Karsten Springstead, Seattle Parks and Recreation

Appendix B. Figure 1



LEGEND

- PARCEL D/PARCEL F BOUNDARY
- PROPERTY BOUNDARIES
- RAIL LINE
- FENCE
- SHEET PILE SEAWALL
- OPERATIONS CONTAINMENT AREA (OCA) (MIN. 6" ASPHALT CONTAINMENT BERM)
- PROPOSED OCA EXPANSION AREA
- SSB-1 — 2020 SOIL BORING LOCATION AND DESIGNATION
- EMW-9SA — 2020 REPLACEMENT SHALLOW GROUNDWATER MONITORING WELL LOCATION
- 2013 SOIL BORING
- 2013 SHALLOW GROUNDWATER MONITORING WELL
- 2013 INTERMEDIATE-DEPTH GROUNDWATER MONITORING WELL
- 2012 TRENCH SAMPLE
- 2008 GROUNDWATER MONITORING WELL
- 1989 OR 1990 GROUNDWATER MONITORING WELL (ABANDONED OR DESTROYED)
- 1989 OR 1990 GROUNDWATER MONITORING WELL
- 1989 OR 1990 SOIL BORING (APPROX. LOCATION)
- 1989 OR 1990 SURFACE SOIL SAMPLE (APPROXIMATE LOCATION)
- 1994 SOIL BORING (APPROXIMATE LOCATION)
- 2008 SOIL BORING (APPROXIMATE LOCATION)
- 2009 SOIL BORING (APPROXIMATE LOCATION)
- 2010 TEST PIT (APPROXIMATE LOCATION)
- 2013 GROUNDWATER SEEP SAMPLE
- JULY 2014 SOIL BORING
- 2014 DECOMMISSIONED GROUNDWATER MONITORING WELL
- DECEMBER 2014 SOIL BORING
- 2014 SHALLOW GROUNDWATER MONITORING WELL
- 2014 DEEP GROUNDWATER MONITORING WELL
- 2018 DESTROYED GROUNDWATER MONITORING WELL
- EMW-23S — 2024 SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

NOTES

1. DRAWING COMPILED FROM TRIAD ASSOCIATES, KIRKLAND, WA. SURVEY PLAN, DRAWING 06133-CC052908.DWG.
2. AT THE FEW INVESTIGATION LOCATIONS WHERE THE SOIL BORING NAME IS DIFFERENT FROM THE MONITORING WELL NAME, BOTH NAMES ARE LISTED ON THIS FIGURE AND THE SOIL BORING NAME IS WITHIN PARENTHESES.
3. BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

Source: SLR, 2023

LANDAU ASSOCIATES

8th Avenue Terminals, Inc Site
7400 8th Avenue South
Seattle, Washington

Previous Investigation Locations

Figure 1