

60% Remedial Design

Volume II – Part III

Long-Term Monitoring and Maintenance
Plan Outline

1 Long-Term Monitoring and Maintenance Plan Outline

The draft Long-Term Monitoring and Maintenance Plan (LTMMP) for the Lower Duwamish Waterway (LDW) was submitted to the U.S. Environmental Protection Agency (EPA) on June 5, 2025. Thus, this document provides an outline of the appendix to the LTMMP that will describe the middle reach-specific details needed to support long-term monitoring of the middle reach¹ (Section 1.2). An annotated outline for the middle reach-specific details will be provided with the Pre-Final (90%) remedial design (RD) and will remain as an annotated outline in the Final (100%) RD. The implementing entity will complete and implement this middle reach-specific portion of the LTMMP after construction is complete.

1.1 Draft Long-Term Monitoring and Maintenance Plan

The draft LTMMP was developed in accordance with *Guidance for Management of Superfund Remedies in Post Construction* (EPA 2017) and includes elements from the baseline study designs and recommendations as described in the *Pre-Design Studies Data Evaluation Report* (Windward 2020) and periodic monitoring data report (Anchor and Windward 2024). The LTMMP includes both LDW-wide long-term monitoring elements (Section 2 of the LTMMP) and elements specific to the remedy in each reach (Section 3 of the LTMMP), such as specific monitoring requirements for caps, enhanced natural recovery (ENR) areas, and monitored natural recovery (MNR) in benthic sediment cleanup objective (SCO) areas. The LTMMP also presents how long-term monitoring data will be used to support EPA's 5-year reviews (Section 4 of the LTMMP) and how results will be evaluated and reported (Section 5 of the LTMMP).

1.2 Middle Reach-Specific Monitoring Details

Appendix D2 of the LTMMP will provide the middle reach-specific monitoring details. The outline for this appendix will be as follows:

1. Introduction
2. Location-Specific Recontamination Monitoring: Section 2.1.4 of the LTMMP describes the approach for conducting location-specific recontamination to ensure that remediated areas remain protective of Remedial Action Objective 3. Following the criteria described in the LTMMP, this section will present a table showing which middle reach sediment management areas and early action areas will require location-specific recontamination monitoring.
3. Technology-Specific Monitoring: Section 3 of the LTMMP describes the approach for monitoring and maintenance activities required to evaluate remedy performance. This section will present the middle reach locations and location-specific contaminants for the four types of areas that may require monitoring, as follows:

¹ The middle reach-specific appendix will be Appendix D2 of the LTMMP. The upper reach and lower reach appendices will be Appendices D1 and D3 of the LTMMP, respectively. Each will be developed after construction is complete in each reach.

- a. MNR to Benthic SCO Locations
 - b. ENR Areas
 - c. Engineered Cap Areas
 - d. Area-Specific Technology Areas
4. Other Middle Reach Considerations: This will present any relevant middle reach-specific considerations for long-term monitoring, such as the overlap of sediment remediation areas and clam tissue sampling areas.²

² For long-term monitoring of clam tissue, if an area has been remediated within the past 5 years, clam tissue collection will not be attempted in order to allow time for the clam population to re-establish itself following remediation (see the Appendix A2 of the draft LTMMP).

2 References

Anchor QEA and Windward (Windward Environmental LLC), 2024. *Data Report: 2023 Periodic Monitoring of Fish, Crab, Clam, and Surface Water in the Lower Duwamish Waterway*. Final. Submitted to the U.S. Environmental Protection Agency December 23, 2024.

EPA (U.S. Environmental Protection Agency), 2017. *Guidance for Management of Superfund Remedies in Post Construction*. Office of Superfund Remediation and Technology Innovation. OLEM 9200.3-105. February 2017.

Windward, 2020. *Lower Duwamish Waterway Pre-Design Studies Data Evaluation Report (Task 6)*. Prepared for Lower Duwamish Waterway Group.