

FINAL

Attachment D

Existing Geotechnical Studies

Existing Geotechnical Studies

This attachment includes a tabular summary of the individual reports that were identified and reviewed during preparation of the Lower Duwamish Waterway (LDW) middle reach Pre-Design Investigation (PDI) Quality Assurance Project Plan (QAPP) Addendum for Phase II.

Data Sources

Pre-PDI geologic and geotechnical data for bank and in-water areas were reviewed after compiling information from the LDW Remedial Investigation/Feasibility Study, the Washington State Department of Natural Resources Geology Portal, existing completed studies, and specific documents obtained from Lower Duwamish Waterway Group members. Table D-1 summarizes the historical geotechnical investigations and geologic information obtained. Maps 5-2a and 5-2b in the PDI QAPP Addendum for Phase II document the locations of previous geotechnical explorations that were identified.

Table D-1
Historical Geotechnical Investigations and Geologic Information

| File Title | Nearest RAL Exceedance Area | RM | Document Title | Document Type | Date of Investigation | Project Location | Field Information and Engineering Evaluations | Laboratory Testing | Author |
|---------------------------------------|-----------------------------|-----------|--|---------------|-----------------------|---|---|--|---|
| RM 1.50-1.65_E – BPB Gypsum Inc | 32/34 | 1.5–1.65E | Subsurface investigation for the Proposed Plant Addition | Report | 01-22-1996 | BPB Gypsum Inc, 5931 E. Marginal Way S, Seattle | Site plan, 3 boring logs with blow counts, lithologic descriptions, groundwater conditions | Grain size analysis, Atterberg limits | Pacific Testing Laboratories |
| RM 1.50-1.65E – BPB Gypsum Inc | 32/34 | 1.5–1.65E | Geotechnical Evaluation for Storm Water Outfall Located at the West Side of the Plant Along the Duwamish River | Report | 09-09-1993 | BPB Gypsum Inc, 5931 E. Marginal Way S, Seattle | Site plan, boring log with blow counts, lithologic descriptions, groundwater conditions | Grain size analysis | Pacific Testing Laboratories |
| RM 1.50-1.65_E – BPB Gypsum Inc | 32/34 | 1.5–1.65E | Geotechnical Engineering Design Study for Proposed Kaiser Dock Upgrade | Report | 10-26-1995 | BPB Gypsum Inc, 5931 E. Marginal Way S, Seattle | Site plan, 2 boring logs with blow counts, lithologic descriptions, groundwater conditions, slope stability cross sections | Grain size analysis, Atterberg limits, | Hart Crowser |
| RM 1.65-1.7_E – Glacier Northwest Inc | 34 | 1.65–1.7E | Geotechnical Design Criteria Proposed Mooring Dolphins | Figures/logs | 11-14-1994 | Glacier Northwest (North side of Slip 2) | Site plan, 3 boring logs with blow counts, 2 CPTs, lithologic descriptions, groundwater conditions | None | Hart Crowser |
| RM 1.55-1.8_W – T115 | 28 | 1.55-1.8W | Geotechnical Engineering Report – Port of Seattle, Terminal 115 Barge Repair and Replacement Seattle, Washington | Report | 6-17-2005 | Port of Seattle, Terminal 115 | Site plan, 6 boring logs with blow counts, 4 CPTs, lithologic descriptions, geologic cross sections, groundwater conditions, earthquake engineering evaluation, slope stability, foundation design, construction considerations | Grain size analysis, Atterberg limits, water content | Shannon & Wilson, Inc |
| RM 1.75_E – Lone Star Investors LP | 33 | 1.75E | Foundation Investigation for Proposed Warehouse First Avenue South at Slip No. 2 | Figures/logs | 03-26-1969 | Trent Avenue Partners LLC (South side of Slip 2) | Site plan, 2 boring logs with blow counts, lithologic descriptions | None | Geolabs, Inc. |
| RM 1.85-2.0_W – Port of Seattle | 26/28 | 1.85–2.0W | NA | Figures/logs | 04-28-1970 | Port of Seattle, Terminal 115 | Site plan, 2 boring logs with blow counts, lithologic descriptions, groundwater conditions | None | Seattle Engineering Department Materials Laboratory |
| RM 1.85-2.0_W – Port of Seattle | 26/28 | 1.85–2.0W | Addendum Report of Soils Investigation Proposed Fish Processing and Cold Storage Facility | Report | 11-23-1977 | Port of Seattle, Terminal 115 | Site plan, boring log with blow counts, lithologic descriptions, groundwater conditions | Direct shear testing, consolidation testing | Dames & Moore |
| RM 1.85-2.0_W – Port of Seattle | 26/28 | 1.85–2.0W | Memorandum Assessment for Potential Hazardous Materials Utilidor Crossing | Figures/logs | 04-26-1993 | Port of Seattle, Terminal 115 | Site plan, Monitoring Well boring log with blow counts, lithologic descriptions, groundwater conditions | None | Dames & Moore |
| RM 1.85-2.0_W – Port of Seattle | 26/29 | 1.85–2.0W | Geotechnical Report First Avenue South Bridge Utilidor Relocation | Report | 04-08-1993 | City of Seattle utility shafts north of the 1 st Ave S Bridge on the east and west banks | Site plan, 2 boring logs with blow counts, lithologic descriptions, geologic cross section | Grain size analysis | Shannon & Wilson, Inc |

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| RM 2.0_W | 26 | 2.0W | Geotechnical Data Report West Duwamish CSO Control Project | Report | 07-23-2023 | Southwest of the west bank of the LDW, bordered by SW Michigan Street and 2 nd Avenue SW | Site plan, 8 boring logs with blow counts, 3 CPTs, lithologic descriptions, groundwater conditions | Grain size analysis, Atterberg limits, one-dimensional consolidation, organic content, water content | Aspect Consulting |
| RM 2.0_E | 27/29 | 2.0E | Georgetown Wet Weather Treatment Station - Outfall | Report | 1-21-15 | S River St and Occidental Ave S | Site plan, 6 boring logs with blow counts, 9 CPTs, lithologic descriptions, groundwater conditions, geophysical recommendations, geotechnical recommendations | Grain size analysis, moisture content, Atterberg limits, specific gravity, direct simple shear, one-dimensional consolidation | CH2M Hill |
| RM 2.0-2.1_1 st Ave Bridge | 26/28/29 | 2.0-2.1 | Geotechnical Report First Avenue South Bridge Utilidor Relocation (rev.) | Report | 6-29-1993 | Duwamish River | Site plan, 4 boring logs with blow counts, lithologic descriptions, geologic cross section, site geologic and field exploration descriptions | Grain size analysis | Shannon & Wilson, Inc |
| RM 2.0-2.1_1 st Ave Bridge | 21/26/27/28 | 2.0-2.1 | NA | Figures/logs | 3-31-1972 | SR 509 Kenyon to 1 st Ave S, on both east and west sides of the bridge and in the channel | Generalized soils profile, 5 boring logs with blow counts, lithologic descriptions | None | Washington State Highway Commission, Department of Highways |
| RM 2.0-2.1_1 st Ave Bridge | 21/26/27/28 | 2.0-2.1 | NA | Figures/logs | 09-30-1952 | 1 st Ave S Bridge, on both east and west sides of the bridge and in the channel | Site plan, 5 boring logs with blow counts, lithologic descriptions | None | NA |
| RM 2.0-2.1_1 st Ave Bridge | 21/26/28 | 2.0-2.1 | NA | Figures/logs | 07-12-1965 | 1 st Ave S Bridge, on west side of the bridge and in the channel | Site plan, 2 boring logs with blow counts, lithologic descriptions, and geological cross section | Grain size analysis | Metropolitan Engineers |
| RM 2.0-2.1_1 st Ave Bridge | 21/26/28 | 2.0-2.1 | Geotechnical Report Preliminary Exploration and Engineering Studies First Avenue South Bridge Over Duwamish | Report | 08-26-1992 | 1 st Ave S Bridge, on west side of the bridge and in the channel | Site plan, 2 boring logs with blow counts, CPT log, cross section depicting generalized subsurface profile | Grain size analysis, Atterberg limits | Shannon & Wilson, Inc |
| RM 2.15E | 24 | 2.15E | Addendum to Report of Soils Investigation Proposed Warehouse Facilities East Marginal Way and River Street | Report | 08-04-1967 | East Marginal Way and River Street | Site plan, boring logs with blow counts, lithologic descriptions, groundwater conditions, subsurface cross-section | Direct shear test, consolidation test | Dames & Moore |
| RM 2.20_E-0001800113 | 19 | 2.2E | Preliminary Report Foundation Investigation Proposed Warehouse building | Report | 07-27-1967 | Fox Ave S along the east side waterway | Site plan, 4 boring logs with blow counts, lithologic descriptions, | Direct shear test, consolidation test | Roger Lowe Associates |
| RM 2.25_W – S Orchard St & Occidental Ave S | 16/20 | 2.25-2.6W | NA | Figures/logs | 01-29-1973 | S Orchard St & Occidental Ave S and S Riverside Dr & S Webster St | Site plan, 2 boring logs with blow counts, lithologic descriptions, groundwater conditions | None | Seattle Engineering Department |
| RM 2.40-2.50_E – Shalmar Group LLC | 13/14/15 | 2.4-2.5E | NA | Figures/logs | 10-26-1972 | 600 South Garden Street | Site plan, boring log with blow counts, lithologic descriptions | | Seattle Engineering Department |

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| RM 2.40-2.50_E – Shalmar Group LLC | 13/14/15 | 2.4–2.5E | Geotechnical Engineering Report SIMC Relocation Project | Report | 07-06-1998 | 600 South Garden Street | Site plan, 8 boring logs with blow counts, CPT log, lithologic descriptions, geologic cross-sections, dilatometer test | Grain size analysis, Atterberg limits, bearing ratio test, consolidation test | AGRA Earth and Environmental, Inc. |
| RM 2.45_W - Boyer Towing Inc | 12 | 2.45W | Geotechnical Study for Replacement dock for Boyer Towing | Report | 02-03-2004 | 2 nd Ave S and S Fontanelle St | Site plan, surface profile, cross section depicting generalized subsurface conditions, 2 boring logs with blow counts, lithologic descriptions, groundwater conditions | None | Shannon & Wilson, Inc |
| RM 2.50_W - South Park Neighborhood | 10 | 2.5W | South Park Neighborhood Development Program Subsurface Investigation | Report | 05-17-1973 | S Fontanelle St | Site plan, subsurface profiles, boring log with blow counts, lithologic descriptions, groundwater conditions | None | Shannon & Wilson, Inc |
| RM 2.70_W - City of Seattle | 5 | 2.7W | Geotechnical Design Report Proposed Seventh Avenue South Strom Sewer | Report | 05-24-1988 | Junction between 7 th Ave S, S. Riverside Dr & Holden St | Site plan, generalized subsurface conditions, 2 boring logs with blow counts, lithologic descriptions, ground water and well data | Grain size analysis, limited analytical data also included | Converse Consultants NW |
| RM 2.70_W - SP Pump Station | 5 | 2.7W | South Park Pump Station – Review and Update of Geotechnical Recommendations and Geotechnical Design Parameters | Report | 02-28-2019 | Junction between 7 th Ave S, S Riverside Dr & Holden St | Site plan, 4 boring logs with blow counts, lithologic descriptions, 4 CPTs, groundwater conditions, geotechnical recommendations | Grain size analysis, Atterberg limits | SPU Geotechnical Engineering |
| RM 2.75_E - 8th Ave S | 7/8/9 | 2.75W | NA | Figures/logs | 10-18-1972 | 8 th Ave S | Site map, boring log with blow counts, lithologic descriptions, groundwater conditions | None | Seattle Engineering Department |
| RM 2.75_E - 8th Ave S | 7/8/9 | 2.75W | Geotechnical Evaluation of Proposed Directional Drill Boring Under the Duwamish River | Report | 02-26-1997 | 8 th Ave S | Site map, boring log with blow counts, lithologic descriptions | Grain size analysis, Atterberg limits | Golder Associates |
| RM 2.80_E - City of Seattle | 3 | 2.8E | Final Report Soils Investigation | Figures/logs | 06-12-1969 | E. Marginal Way by Slip No. 4 | Site map, boring log with blow counts, lithologic descriptions, | Grain size analysis | Metropolitan Engineers |
| RM 2.80_E - DeNovo Seattle LLC | 3/7/8/9 | 2.8E | Final Report-Geotechnical Exploration Proposed Warehouse | Report | 08-13-1979 | 8 th Ave S and Duwamish Waterway | Site map, 3 boring logs with blow counts, lithologic descriptions | None | Converse Ward Davis Dixon, Inc. |
| RM 2.80_W - S Riverside Dr | 4/5 | 2.8W | NA | Figures/logs | 06-20-1965 | S Portland St. | Site map, boring log with blow counts, lithologic descriptions | None | Metropolitan Engineers |
| RM 2.85_E - E Marginal Way Pump Station | 3 | 2.85E | Final Report Foundation Investigation East Marginal Way Pump Station | Report | 11-09-1962 | East Marginal Way Pump Station | Site map, 2 boring logs with blow counts, lithologic descriptions, groundwater data | None | Metropolitan Engineers |
| RM 2.85_W - 8th Ave S & S Riverside Dr | 1 | 2.85W | Geotechnical Evaluation of Proposed Directional Drill Boring Under the Duwamish River | Report | 04-16-1997 | S Portland St. | Site map, cross section depicting generalized subsurface conditions, soil liquefaction evaluation, 2 boring logs with blow counts, lithologic descriptions, groundwater data | Atterberg limits, grain size analysis | Golder Associates |
| RM 2.90-2.95_W - Silver Bay Logging Inc | 1 | 2.9–2.95W | Settlement Evaluation and Limited Liquefaction Assessment Workboats Northwest Building Expansion | Figures/logs | 03-02-1992 | 8 th Ave S and Duwamish Waterway | Site map, 3 boring logs with blow counts, lithologic descriptions | None | Rittenhouse-Zeman & Associates, Inc. |

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| RM 2.90-3.0_E - Boeing | 2 | 2.9-3.0E | NA | Report | 05-29-1990 | S Webster St | Site map, 2 boring logs with blow counts, 2 CPT logs, lithologic descriptions | Grain size analysis, Atterberg limits, consolidation test | Geo Engineers |
| RM 2.90-3.0_E - Boeing | 2 | 2.9-3.0E | NA | Figures/logs | 09-19-1994 | E. Marginal Way S & 16 th Ave S | Site map, boring log with blow counts, lithologic descriptions | None | Weston Consultants |
| RM 3.0_W - 10th Ave S | 1 | 3.0W | NA | Figures/logs | 09-04-1964 | S. Kenyon St. & 10 th Ave S. | Site map, boring log with blow counts, lithologic descriptions | None | Metropolitan Engineers |

Notes:
 CPT: cone penetration testing
 CSO: combined sewer overflow
 LDW: Lower Duwamish Waterway
 NA: not applicable
 RAL: remedial action level
 rev: revised
 RM: river mile
 SPU: Seattle Public Utilities