ROTHMAN & ASSOCIATES

Groundwater Monitoring Report

Third Quarter 2017

Property:

North Lot Property
255 South King Street
Seattle, Washington

Prepared for:

255 S King Street LP
270 South Hanford Street, Suite 100
Seattle, Washington

August 30, 2017

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Washington State Department of Ecology Facility ID 5378137
255 South King Street
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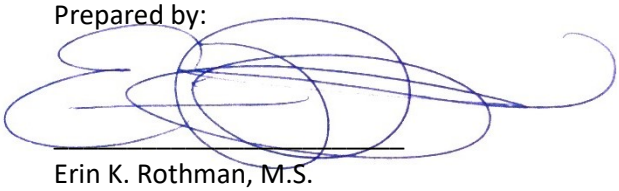
Prepared by:



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August 30, 2017

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1.0 INTRODUCTION

Rothman & Associates has prepared this Third Quarter 2017 Groundwater Monitoring Report for the North Lot Property, located at 201 and 255 South King Street in Seattle, Washington (the Site), on behalf of 255 S. King Street LP to demonstrate compliance with the specific requirements of the cleanup action completed at the North Lot Property between 2014 and 2017 as part of a Prospective Purchaser Consent Decree.

2.0 BACKGROUND

This section provides a description of the Site features and location, a summary of historical land use, and a description of the local geology and hydrogeology of the Site and adjoining parcels.

2.1 Property Location and Description

The Site, which is located at 201 and 255 South King Street in the Pioneer Square neighborhood of Seattle, Washington, includes two rectangularly-shaped tax parcels (King County Parcel Nos. 766620-4878 and 795300-0000) that cover approximately 168,573 square feet (3.87 acres) of land.

The location of the Site is shown on Figure 1. Figure 2 depicts a plan view/layout of the Site and locations of the compliance monitoring wells.

2.2 Land Use History of the Site

Based on a review of historical records and the findings of the Remedial Investigation (RI) completed by Landau Associates in 2011, the Site was originally undeveloped tide flats of Elliott Bay. The Site was filled in the late 1890s and early 1900s and operated as a rail yard from the late 1800s until the late 1960s. The fill material underlying the Site is composed of remnants of the former rail yard operations and construction debris (i.e., brick, metal, and concrete). Prior to filling, the Site was initially developed with streets, buildings, and railroad tracks elevated on and supported by pilings. Several sets of railroad tracks were formerly present on the Site. Structures associated with the rail yard included engine maintenance buildings, sand houses, coal houses, oil houses, and materials storage areas. King County purchased the Site in the 1970s to facilitate construction of the Kingdome stadium to the south of the Site, which was later demolished and replaced with the current CenturyLink Field and Event Center development. The Site was used as a parking lot since the 1970s. 255 S. King Street LP purchased the Property from NLD in August 2013 and redeveloped it with a high-rise hotel, residential, and commercial/retail buildings with belowground parking in 2014 and 2017.

2.3 Regional Hydrogeology

The geology of the region is generally characterized by a thick sequence of glacial soil overlying tertiary bedrock, with local areas of exposed surficial bedrock. In general, the glacial stratigraphic sequence of the Puget Lowland consists of generally fine-grained, low-energy, non- glacial and glacial lacustrine and fluvial deposits overlain by glacial advance sand. The advance sand is overlain by glacial till, which, in turn is locally overlain by glacial recessional sand, where present, as well as organic-rich peat, lacustrine, and alluvial deposits. Where exposed, the glacial soil has been modified by mass wasting, stream erosion and deposition, and anthropogenic modifications (Booth et al. 2009).

The hydrogeology of the Puget lowland and Quaternary glacial soil includes near-surface, non-glacial alluvial deposits, perched water-bearing zones atop and within the glacial till soil or other consolidated fine-grained or cemented glacial deposits, and more persistent and higher yielding water-bearing zones present within the underlying glacial advance sands and older granular glacial and non-glacial deposits. The advance sands can be an important source of potable water supplies, particularly in suburban and rural locations within the Puget Lowland, while the water-bearing zones within the glacial till are not often exploited as a potable source as a result of significant seasonal fluctuations, low yield, and susceptibility to water quality degradation (Booth et al. 2009).

3.0 GROUNDWATER MONITORING EVENT

The groundwater monitoring event was conducted on August 2 and 4, 2017, and included the sampling of six monitoring wells: MW-16D, MW-18D, MW-19, MW-20, MW-21, and MW-22.

3.1 Depth to Groundwater

Prior to sampling, on August 2, 2017, the wells were opened and allowed to equilibrate to atmospheric pressure. Depth to water in the wells was measured using an electronic interface probe and ranged from 6.32 feet (MW-19) and 11.09 feet (MW-18D) below the top of the well casings (Table 1).

3.2 Groundwater Sampling

All six of the monitoring wells were sampled using a peristaltic pump and single-use polyethylene tubing using low-flow sampling techniques (EPA/540/S-95/504). Samples were collected directly from the sampling equipment and stored on ice in a cooler. Groundwater samples collected from monitoring wells were designated with the well number (e.g., MW-19), and the samples were logged on a chain-of-custody form and submitted to Friedman & Bruya, Inc. in Seattle, Washington, following proper chain-of-custody protocols.

Groundwater samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. Environmental Protection Agency (EPA) Method 8021; gasoline-range total petroleum hydrocarbons (GRPH) and diesel-range total petroleum hydrocarbons (DRPH) by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-Gx and NWTPH-Dx; polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM; and dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Method 200.8.

A blind duplicate sample was collected for quality control purposes.

3.3 Results

The following subsections summarize the results of the Third Quarter 2017 groundwater monitoring event.

3.3.1 Groundwater Elevation and Flow Direction

Groundwater elevations ranged from 6.08 feet (MW-18D) to 11.17 feet ((MW-19) above mean sea level. The local groundwater gradient and flow pattern across the Property are variable, which is common within

shallow, unconfined aquifers that consist of fill material, especially in urban areas where subgrade constructed features can affect the immediately surrounding groundwater table.

In general, there is a localized area of relatively lower groundwater elevations (i.e., groundwater low) roughly between the corner of South King Street and King Street Station to the east, and an area of relatively higher groundwater elevations (i.e., groundwater high) in monitoring well MW-19 near the central portion of the Property. This is consistent with prior evaluations of groundwater flow and gradient (Landau 2011).

3.3.2 Groundwater Sample Results

Using the Site-specific cleanup levels as a comparison, none of the groundwater samples contained concentrations of any of the analytes in excess of their respective cleanup levels.

- ORPH, GRPH, and BTEX were not detected in any of the samples submitted for analysis.
- DRPH was detected in groundwater collected from MW-20 and MW-22; however, the concentrations were well below the cleanup level established for the Property, and the results were flagged as not representative of DRPH.
- Arsenic was detected in groundwater collected from MW-18D, MW-19, MW-21, and MW-22; none of the arsenic concentrations exceeded the cleanup levels. The concentrations of arsenic in groundwater near the western portion of the Property were below 5 micrograms per liter (µg/L), and the concentrations of arsenic in groundwater near the eastern portion of the Property were below 21.3 µg/L.
- PAHs were not detected in any of the samples collected. However, by virtue of the toxicity equivalency calculations, and using one-half the detection limit for calculations that include non-detectable concentrations, the combined totals for each of the PAHs appear to exceed the cleanup level using EPA Method 8270 SIM, in accordance with the Compliance Monitoring Plan (Landau 2013).

4.0 CONCLUSIONS

The results of the Third Quarter 2017 groundwater monitoring event indicate that the groundwater quality at the point of compliance for the North Lot Property meets the requirements set forth in the Consent Decree.

The Fourth Quarter 2017 monitoring event will be conducted in October 2017, and the results will be submitted to Ecology for review and approval in a quarterly groundwater monitoring report.

Future monitoring events will include the collection of 2 liters of groundwater per monitoring well to meet the dilution requirements for trace-level 8270 SIM analysis, which will be used in order to achieve detection limits that meet the cleanup level for PAHs of 0.012 µg/L.

5.0 LIMITATIONS

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Sampling was conducted at widely spaced boring locations and depths, so the potential remains for unknown, unidentified, or unforeseen subsurface contamination to exist on portions of the Site that were not accessed in the course of this investigation. No warranty, express or implied, is made regarding the information and recommendations provided in this report.

6.0 REFERENCES

Booth, Troost, Goetz, and Schimel. 2009. Geologic map of northeastern Seattle (part of the Seattle North 7.5' x 15' quadrangle), King County, Washington: U.S. Geological Survey Scientific Investigations Map 3065, scale 1:12000 and database.

Landau Associates. 2011a. Remedial Investigation Report, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. May 23.

Landau Associates. 2011b. Feasibility Study Report, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. May 23.

Landau Associates. 2011c. Cleanup Action Plan, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. July 1.

Landau Associates. 2011d. Engineering Design Report, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. July 5.

Landau Associates. 2012. Feasibility Study Addendum, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. September 27.

Landau Associates. 2013. Cleanup Action Plan Addendum, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. September 18.

Landau Associates. 2014. Engineering Design Report Addendum, North Lot Development, Seattle, Washington. Prepared for North Lot Development, LLC. February 28.

Washington Department of Ecology. 2014. Table D-1 of the Consent Decree, Cleanup Action Schedule, North Lot Property, Seattle, Washington. January 14.

FIGURES

TABLE

APPENDIX A

Laboratory Analytical Results