OPERATIONS AND MAINTENANCE PLAN

Lenora Building Site

Facility/Site #91413494 and Cleanup Site ID #1802

Prepared for: Ninth and Lenora LLC

Project No. 170291 • September 14, 2023

Aspect CONSULTING

earth + water

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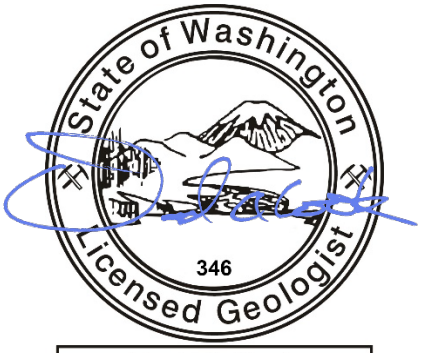

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1 Introduction

This Operations and Maintenance Plan (O&M Plan) has been prepared in accordance with the Washington State Department of Ecology's (Ecology) "Opinion on Proposed Cleanup of a Property Associated with a Site" letter[1] dated August 9, 2021 (2021 Ecology Letter) for the Lenora Building Site located at 820 Lenora Street[2] (Subject Property; Figure 1).

This O&M Plan is designed to guide monitoring of institutional controls selected and documented in the Remedial Investigation/Feasibility Study,[3] and the Cleanup Action Report Amendment[4] (the most recent document submitted to Ecology in August 2022). The purpose of this O&M Plan is to establish a monitoring program for caps that contain contaminated soil remaining within the boundaries of the Subject Property, which extend to the midpoint of City of Seattle rights-of-way (9th Avenue, Lenora Street) and an alley.

1.1 Background

Aspect submitted a Cleanup Action Report to Ecology dated March 26, 2020[5] (CAR; Aspect, 2020), which summarized the successful cleanup and post-remedial actions that facilitated the construction of a 42-story apartment tower and underground parking garage (aka the Stratus Apartments). The four post-remedial action conditions for the Subject Property are detailed below:

1. **Capped Residual Contaminated Soil.** Based on confirmation soil sampling data, residual petroleum-and polycyclic aromatic hydrocarbon (PAH)-contaminated soil exceeding Ecology Model Toxics Control Act (MTCA) cleanup levels remains capped in-place under hard pavements in three limited areas (see Figure 1): (1) 9th Avenue (within the Subject Property), (2) Lenora Street (within the Subject Property), and (3) the alley (outside the Subject Property) owned by City of Seattle Department of Parks and Recreation. Details for each capped location is as follows:

    - **9th Avenue**. Residual gasoline-range hydrocarbons and benzene-contaminated soil is present in an area measuring approximately 20 feet long (north-south) by 10 feet wide (east-west) and 9 feet thick (between approximate depths of 15 feet

[1] Washington State Department of Ecology (Ecology), 2021. RE: Opinion on Proposed Cleanup of a Property Associated with a Site, Site Name: Lenora Building, Site Address: 2101 9th Avenue and 2118 Westlake Avenue, Seattle, Washington 98121, Facility/Site No.: 91413494, Cleanup Site ID No.: 1802, VCP Project No.: NW3277. August 9, 2021.

[2] Formerly 2101 9th Avenue

[3] GeoEngineers, Inc., 2016. Remedial Investigation and Feasibility Study, Ninth and Lenora Development, 2101 9th Avenue, Seattle, Washington, Facility/Site #91413494, Cleanup Site ID: 1802, VCP Project No. NW2980. March 24, 2016.

[4] Aspect Consulting LLC (Aspect), 2022. Cleanup Action Report Amendment, Lenora Building Site, Facility/Site #91413494 and Cleanup Site ID #1802, Project No. 170291. August 23, 2022.

[5] Aspect Consulting LLC (Aspect), 2020. Cleanup Action Report, Lenora Building Site (aka Stratus Apartments), 820 Lenora Street, Seattle, Washington Facility/Site #91413494, Cleanup Site ID: 1802, Prepared for: Ninth and Lenora LLC. March 26, 2020.

below ground surface (bgs) and 24 feet bgs [Elevations 72 feet and 63 feet amsl]). The 9th Avenue surface Elevation is 87 feet amsl.

- **Lenora Street.** Residual gasoline- and heavy oil-range hydrocarbons, toluene- and PAH-contaminated soil is present in an area measuring approximately 40 feet long (east-west) by 8 feet wide (north-south) and 8 feet thick (between approximate depths of 24 feet bgs and 36 feet bgs [corresponding approximate Elevations 63 and 55 amsl]) The Lenora Street surface Elevation is 87 feet amsl.
- **Alley.** Residual heavy oil-range hydrocarbons and PAH-contaminated soil is present in an area measuring approximately 60 feet long (north-south) by 10 feet wide (east-west) and 8 feet thick (between approximate depths of 6 feet bgs and 14 feet bgs [corresponding Elevation 63 to 55 feet amsl]). The alley surface Elevation is 69 feet amsl.

2. **Regional Groundwater Quality Meets MTCA.** Regional groundwater is deep (53.30 feet and 55.39 feet bgs [Elevations 16 and 14 feet amsl]) based on measurements from a former groundwater monitoring well (G-1) at the Subject Property in 2014 and 2015. Groundwater samples demonstrated that:
    - Arsenic, chromium, and lead were present at concentrations less than MTCA Method A Cleanup Levels.
    - Petroleum hydrocarbons (gasoline-, diesel-, and heavy oil-range hydrocarbons) including BTEX (benzene, toluene, ethylene, and xylene) were not detected.
3. **Perched Water Discontinuous or Not Present.** Perched water was encountered in localized, discontinuous locations (for example in well MW-01 groundwater was occasionally observed at 18 feet bgs and then also was dry in 2014 and 2015). (Table 5 and 6, and Figure 10 and 11). No perched groundwater was encountered within the mass excavation footprint during construction in 2015 at the Subject Property.
4. **Vapor Intrusion Pathway Incomplete.** The assessment of potential risk for vapor intrusion (VI) demonstrates that the soil vapor to inhalation pathway is incomplete under current conditions at the Site.

This O&M Plan addresses the operations and maintenance of institutional controls to ensure the protection of human health and the environment with respect to petroleum and PAH-contaminated soil present at the Subject Property (portions of 9th Avenue and Lenora Street), and off-Subject Property (alley).

1.2 Organization

The remainder of this O&M Plan is organized by detailing operations, maintenance and/or monitoring of engineering controls to ensure the protection of human health and the environment with respect to contaminated soil that remains capped within the bounds of the Subject Property. The following elements were requested by Ecology in their August 9, 2021, letter:

Section 2 – Vapor Intrusion Assessment: The Aspect 2020 CAR presents the results of a vapor intrusion assessment and details the incomplete soil vapor exposure pathway. This information is included herein.

Section 3 – Building Foundation Inspection Checklist: Describes the current building foundation condition, evaluation, and maintenance requirements.

Section 4 – Exterior Cap Inspection Checklist: Describes the evaluation and maintenance requirements for impervious areas (portions of 9th Avenue and Lenora Street, and alley). The exterior capped areas are institutional controls to prevent the leaching of residual petroleum and PAH in soil to groundwater.

Section 5 – Contingency Plan Outline (if property use changes): Summarizes actionable responses to building modifications, changes in building use, and changes to the exterior hardscape cap systems.

Section 6 – Reporting Requirements and Timeline: Summarizes reporting procedure for findings of Sections 2 through 5, detailed above.

2 Vapor Intrusion Assessment – Aspect 2020 CAR

Section 10 of Aspect's 2020 CAR presented the "Post-Cleanup (2019) Analyses of Potential Risk of Vapor Intrusion." This post-cleanup vapor intrusion assessment was conducted for the newly constructed Stratus Apartments building at the request of Ecology in 2019. Section 10 of the CAR in its entirety is included in Appendix A of this O&M Plan. Section 12.3 of the Aspect 2020 CAR summarizes the vapor intrusion assessment determination as reiterated here:

> *[As stated in Section 10 of the Aspect 2020 CAR] the soil vapor to inhalation pathway is considered incomplete under current conditions at the Site because:*
>
> - *The nature and extent of residual petroleum- and PAH-contaminated soil impacts pose a low risk for VI, and the construction of the new Stratus building with 6 underground parking levels with ventilation system provide adequate mitigation of any potential VI pathway.*
> - *There are no volatiles in groundwater and no groundwater impacts are in contact with the building foundation that would preclude the conclusions of this assessment.*
> - *Based on the information provided in the 2016 RI/FS (GeoEngineers, 2016a) and CAR (GeoEngineers, 2016b) documents, Ecology stated in the 2017 Property-Specific NFA opinion letter that "the soil vapor intrusion pathway is not an issue at this Site" (Ecology, 2017a).*
> - *Note that nothing has changed at the Site relative to the soil, perched water, and groundwater quality, geological and hydrogeological conditions, and location, nature, and extent of residual petroleum- and PAHs-contaminated soil except for the change in east and south boundaries of the Subject Property (that extend to the centerline of 9th Avenue and Lenora Street).*

Based on Ecology's 2017 determination, the low volatility and localized presence of residual petroleum-and PAH-contaminated soil in three separate areas that are limited in magnitude, the VI exposure pathway for the Subject Property is incomplete and does not warrant additional evaluation.

3 Building Foundation Inspection Checklist

The existing 42-story Stratus Apartments is a reinforced concrete building that consists of six subgrade parking levels, retail at-grade, and residential apartments above. The six-level underground parking structure has a separate ventilation system from the aboveground retail and residential floors. Maintenance of the foundation in its current condition is the responsibility of the Property owner.

As noted in Section 1.1, residual contamination is present in the vicinity of the building's subgrade parking garage in the following locations:

- Along 9th Avenue corresponding to the approximate east-west delineation of the residual contamination described above. The 9th Avenue visual inspection will be limited to evaluating the presence of unsealed open cracks in the garage walls at levels in the parking garage extending to 24 feet bgs, approximately to the third level below grade.
- Along Lenora Street corresponding to the approximate north-south delineation of the residual contamination described above. The inspection will be limited to evaluating the presence of unsealed open cracks in the garage walls at levels in the parking garage extending to 36 feet bgs, approximately to the fourth level below grade.
- Along the alley corresponding to the approximate east-west delineation of the residual contamination described above. The inspection will be limited to evaluating the presence of unsealed open cracks in the garage walls at levels in the parking garage extending to 14 feet bgs, approximately to the fourth level below grade.

Any significant modifications to the foundation as it currently exists that could result in disturbance of the contamination described above will need to be addressed with contingency measures, detailed in Section 5.

Additionally, any significant changes in use to the subgrade floors or significant modifications to the building foundation perimeter that could result in changes to the current vapor encroachment environment need to be addressed by the Property owner.

4 Exterior Cap Inspection Checklist

The current exterior surfaces above portions of 9th Avenue and Lenora Street, and off-Subject Property (alley) consist of asphalt roadways (9th Avenue and Lenora Street),

concrete sidewalks and landscaped areas. Roadway surfaces are maintained by the City of Seattle and it is anticipated that this will not change far into the future.

However, any excavation or disturbance of the subsurface in the locations of the residual contamination documented in Section 1.1 need to be addressed with the appropriate contingency measures detailed in Section 5, below.

5 Contingency Plan Outline

Ecology requested that a Contingency Plan Outline be established in the event that property use changes. This is unlikely because a significant investment was made to construct a 42-story apartment tower with 6 levels of underground parking, which are intended to last many decades. Nevertheless, if this development changes use, or work occurs at the Subject Property, then the following elements will be considered:

Change in Property Use – Building:

1. The Property Owner will notify Ecology of the changed use.
2. A reassessment of capped contamination and its effect, if any, on redevelopment will occur. And the reassessment will include an evaluation of the location of contaminated soil in relation to the changed use, reevaluation of cleanup levels relative to human health and the environment, a reevaluation of vapor intrusion risk, and a check on existing mitigation measures (capping or other measures as needed) will be completed relative to site use changes.

Change in Property Use – Roadways:

1. The City of Seattle will notify the Property Owner of its intent to work within these areas of capped soil contamination and the Property Owner will notify Ecology.
2. If caps in rights-of-ways on 9th Avenue or Lenora Street (or the alley) are planned to be removed and excavation is planned at depths of known soil contamination, then proper soil handling and disposal protocols will be established by the Contractor. The Property Owner will document the actions taken in the areas of known remaining contamination and file a report with Ecology.

6 Reporting Requirements and Timeline

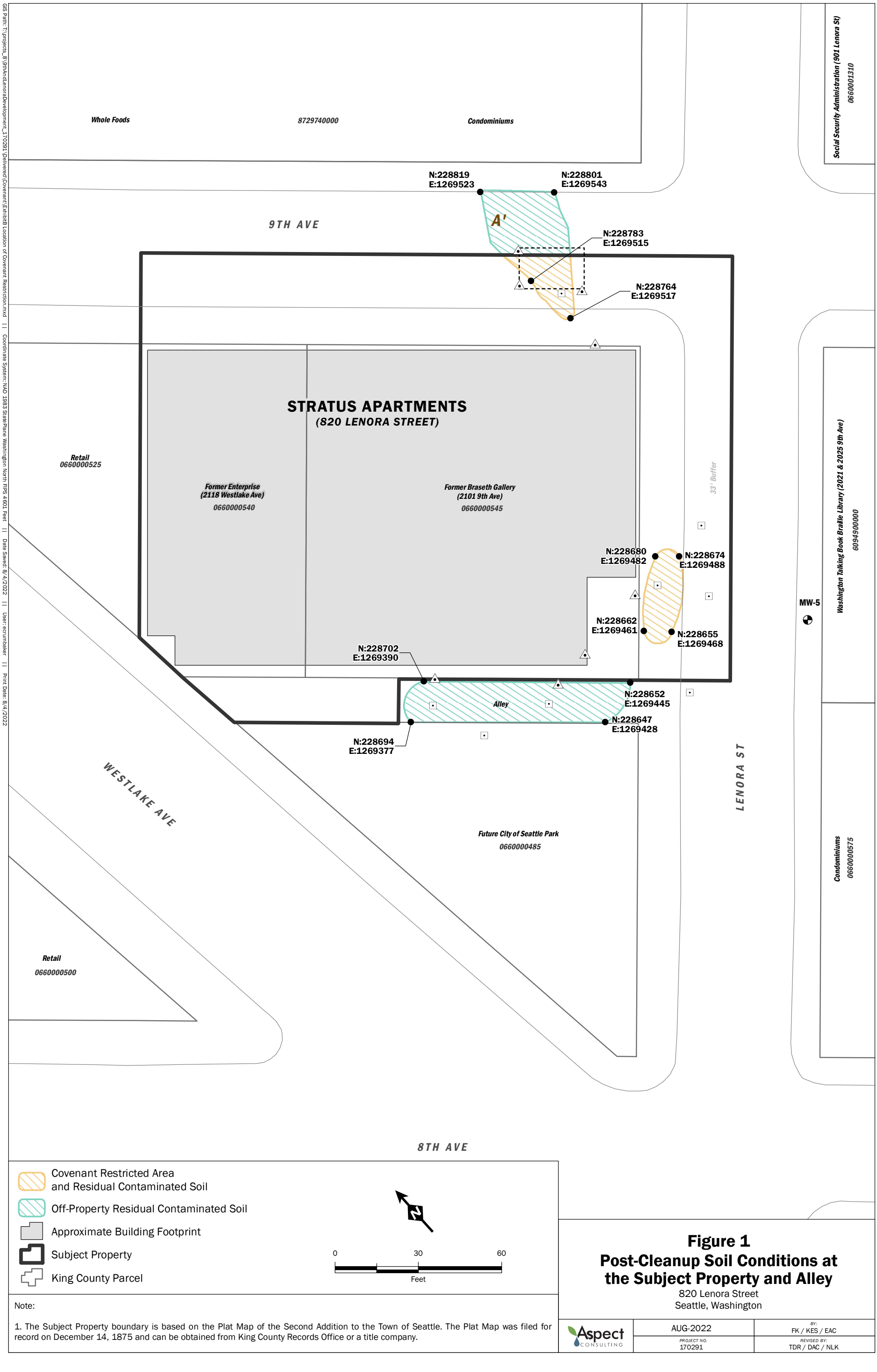
Ecology requested that “Annual Reporting” be completed in their August 9, 2021, letter. However, because the Subject Property as currently developed with the 42-story apartment tower with underground parking is not intended to change, annual reporting is much too rigorous for the risk posed. Ninth and Lenora LLC suggests a reporting protocol as outlined in the Contingency Plan Outline section of this document (Section 5). Reporting to Ecology will occur on an as-needed basis when a change occurs.

7 Limitations

Work for this project was performed for Ninth and Lenora LLC (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

FIGURE



Note:

1. The Subject Property boundary is based on the Plat Map of the Second Addition to the Town of Seattle. The Plat Map was filed for record on December 14, 1875 and can be obtained from King County Records Office or a title company.

Figure 1
Post-Cleanup Soil Conditions at the Subject Property and Alley

820 Lenora Street
Seattle, Washington

Aspect Consulting	AUG-2022	BY: FK / KES / EAC
	PROJECT NO. 170291	REVISED BY: TDR / DAC / NLK

GIS Path: T:\projects_8\9thAndLenoraDevelopment_170291\Delivered\Covenant\ExhibitB Location of Covenant Restriction.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 8/4/2022 || User: ecrumbaker || Print Date: 8/4/2022

APPENDIX A

Section 10 of the March 26, 2020, Cleanup Action Report

10 Post-Cleanup (2019) Analysis of Potential Risk for Vapor Intrusion

Per Ecology's 2019 request, Aspect performed this post-cleanup assessment to evaluate the potential risk for VI in the newly constructed Stratus Apartments building relative to the residual petroleum- and PAH-contaminated soil at the Site.

Aspect's analysis demonstrates that the residual petroleum- and PAH-contaminated soil present at the Site does not pose a risk for potential VI into the existing Stratus Apartments building based on the following four lines of evidence:

10.1 Ecology's 2017 Property-Specific NFA Determination

- Based on the information provided in the 2016 RI/FS (GeoEngineers, 2016a) and CAR (GeoEngineers, 2016b) documents, Ecology stated in the 2017 property-specific NFA opinion letter that "the soil vapor intrusion pathway is not an issue at this Site" (Ecology, 2017a).

  Note that nothing has changed at the Site relative to the soil, perched water, and groundwater quality, geological and hydrogeological conditions, and location, nature, and extent of residual petroleum- and PAHs-contaminated soil except for the change in east and south boundaries of the Subject Property (that extend to the centerline of 9th Avenue and Lenora Street).

  Therefore, based on Ecology's 2017 determination and supplemental considerations outlined below, the VI pathway is still considered incomplete for the Subject Property.

10.2 Stratus Apartments Building Ventilation

- The existing 42-storied Stratus Apartments is a reinforced concrete building that consists of 6 sub-grade parking levels, retail at-grade, and residential apartments above. The 6-level underground parking structure has a separate ventilation system from the above-ground retail and residential floors. Therefore, the vapor exposure pathway for the inhabited/residential portion of the building is incomplete (see item 3 below).
- The air exchange rate of a building is considered a mitigating factor for the potential risk of vapor intrusion. For example, the Johnson-Ettinger (JE) model uses a conservative default air exchange rate of 0.25 exchanges per hour for residential buildings[5] to calculate the predicted indoor air concentration of contaminants that present a potential risk for vapor inhalation. Based on the mechanical drawings for the Stratus building, each of the 6 sub-grade parking

[5] See Appendix D of Ecology's Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology, Toxics Cleanup Program, Publication No.09-09-047, Review Draft October 2009, Revised February 2016 and April 2018.

levels have a ventilation system that provides 7.8 air exchanges per hour[6] in each of the parking garage levels. This air exchange rate is considered adequate for the mitigation of potential impacts to indoor air that could pose a risk to human health in a parking garage use exposure scenario.

10.3 No Volatiles in Groundwater Beneath Stratus Building

- There are no volatiles in groundwater based on chemical testing and the groundwater is not in contact with the building foundation.
- The chemical analytical results of groundwater samples from two former monitoring wells (G-1 located on-property and MW-5 located off-property in south sidewalk of Lenora Street) that were screened in the deep regional aquifer showed no petroleum impacts.
- The 2002 chemical data from perched water samples (obtained directly from the boreholes [B-2 and B-3] that were completed within the Lenora Street and alley, respectively) indicated MTCA exceedances of petroleum hydrocarbons (gasoline- and oil-range). However, this 2002 data does not represent the current perched water conditions due to the following reasons:
    - The data are 17 years old and the petroleum constituents are likely to have experienced natural attenuation since that time.
    - GeoEngineers could not perform a boring at the B-2 location during their investigation in 2014 to verify the 2002 chemical data due to the presence of multiple utilities beneath the Lenora Street sidewalk. However, perched water sampled from three soil borings completed in the vicinity of B-2 (DP-3, DP-4, and DP-5) were below MTCA Method A cleanup levels for petroleum hydrocarbons.
    - Perched water was not encountered within the mass excavation limits during cleanup activities and building construction in 2015.
    - Additionally, clean low permeability glacially consolidated vadose zone soil maintains significant vertical separation (39 feet) between remaining residual inaccessible petroleum-contaminated soil and the static groundwater table beneath the Site.

10.4 Nature and Extent of Residual Contaminated Soil

- The petroleum- and PAH-contaminated soil at the Site is present in three localized and separate areas (9th Avenue, Lenora Street, and the alley) outside the footprint of the existing Stratus building (Figure 7). Only the 9th Avenue and Lenora Street contaminated soil areas are located on the Subject

[6] The air exchange rate per hour was calculated using the formula (CFM * 60/Volume of Parking Garage). The average CFM of the garage fan for the six parking levels was 22,500 Cubic Feet per Minute (CFM) and the volume of parking garage was calculated by multiplying the length (180 feet), width (120 feet) and, height (8 feet) of one level of parking garage.

Property. The nature and extent of these residual soil impacts are considered a low risk for VI based on the following:

- Clean low permeability glacially consolidated vadose zone soil (approximate thickness 39 feet) separates the residual petroleum- and PAHs-contaminated soil from the deep regional groundwater beneath the Site.
- The off-property contamination in the alley comprises oil-range hydrocarbons and carcinogenic PAHs. Based on the low volatility of these contaminants, the residual contaminated soil in the alley poses a low risk for VI.
- The contaminant concentrations documented in 2002 in Lenora Street (gasoline 2,400 mg/kg and oil-range 18,000 mg/kg) are dominated by weathered and heavier-end petroleum hydrocarbons that have a low volatility. These data are also 17 years old and the petroleum constituents are likely to have experienced further natural attenuation since that time as demonstrated by the 2016 RI testing (DP-3, DP-4, and DP-5) and the confirmation soil sampling results along the adjacent southern mass excavation wall during the cleanup action (UST2-EX-S1, Figure 7 and 9). Petroleum hydrocarbons either were not detected or detected at low concentrations below MTCA Method A cleanup levels in the 2014 RI soil samples, and not detected in the 2015 excavation confirmation soil samples.
- The soil contaminant concentrations in 9th Avenue (gasoline 50 mg/kg and benzene 0.23 mg/kg) only slightly exceed MTCA Method A Cleanup Levels (gasoline 30 mg/kg and benzene 0.03 mg/kg). These concentrations are unlikely to pose a risk for the vapor exposure pathway when taken under consideration with the previous lines of evidence including the presence of underground parking garage (6 levels) with high air exchange rate as outlined above.

FIGURES

Whole Foods

8729740000

Condominiums

Social Security Administration (901 Lenora St)
0660001310

9TH AVE

A'

A

B

B'

UTL9-E
Benzene: 0.06 (15 ft)
GRO: 50 (18 ft)

B-1
Benzene: 0.23 (18 ft)

UTL9-N

UTL9-S

EX-1

STRATUS APARTMENTS
(820 LENORA STREET)

Retail
0660000525

Former Enterprise
(2118 Westlake Ave)
0660000540

Former Braseth Gallery
(2101 9th Ave)
0660000545

B-2
GRO: 2400 X (24 ft)
ORO: 18000 (24 ft)
Toluene: 11 (24 ft)

DP-5

UST2EX-W1
Benzo(a)pyrene: 0.11 (24 ft)
cPAH TEQ: 0.1501 (24 ft)
ORO: 19000 (24 ft)

DP-2
cPAH TEQ: 0.125 (8 ft)
DRO: 2900 (8 ft)
ORO: 15000 (8 ft)

UST2EX-S1

DP-4

MW-5

UST2EX-B1

UST2EX-W3

DP-3

Alley

GEI-1

DP-1
Benzo(a)pyrene: 0.22 (4 ft)
cPAH TEQ: 0.2941 (4 ft)

Washington Talking Book Braille Library (2021 & 2025 9th Ave)
6094900000

WESTLAKE AVE

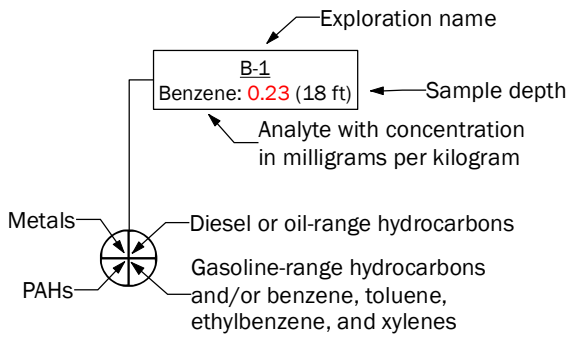
LENORA ST

Future City of Seattle Park
0660000485

Condominiums
0660000575

Note:

1. The Subject Property boundary is based on the Plat Map of the Second Addition to the Town of Seattle. The Plat Map was filed for record on December 14, 1875 and can be obtained from King County Records Office or a title company.



0 30 60
Feet

PAH: Polycyclic aromatic hydrocarbons
MTCA: Model Toxics Cleanup Control Act
GRO: Gasoline-range organics
DRO: Diesel-range organics
ORO: Oil-range organics

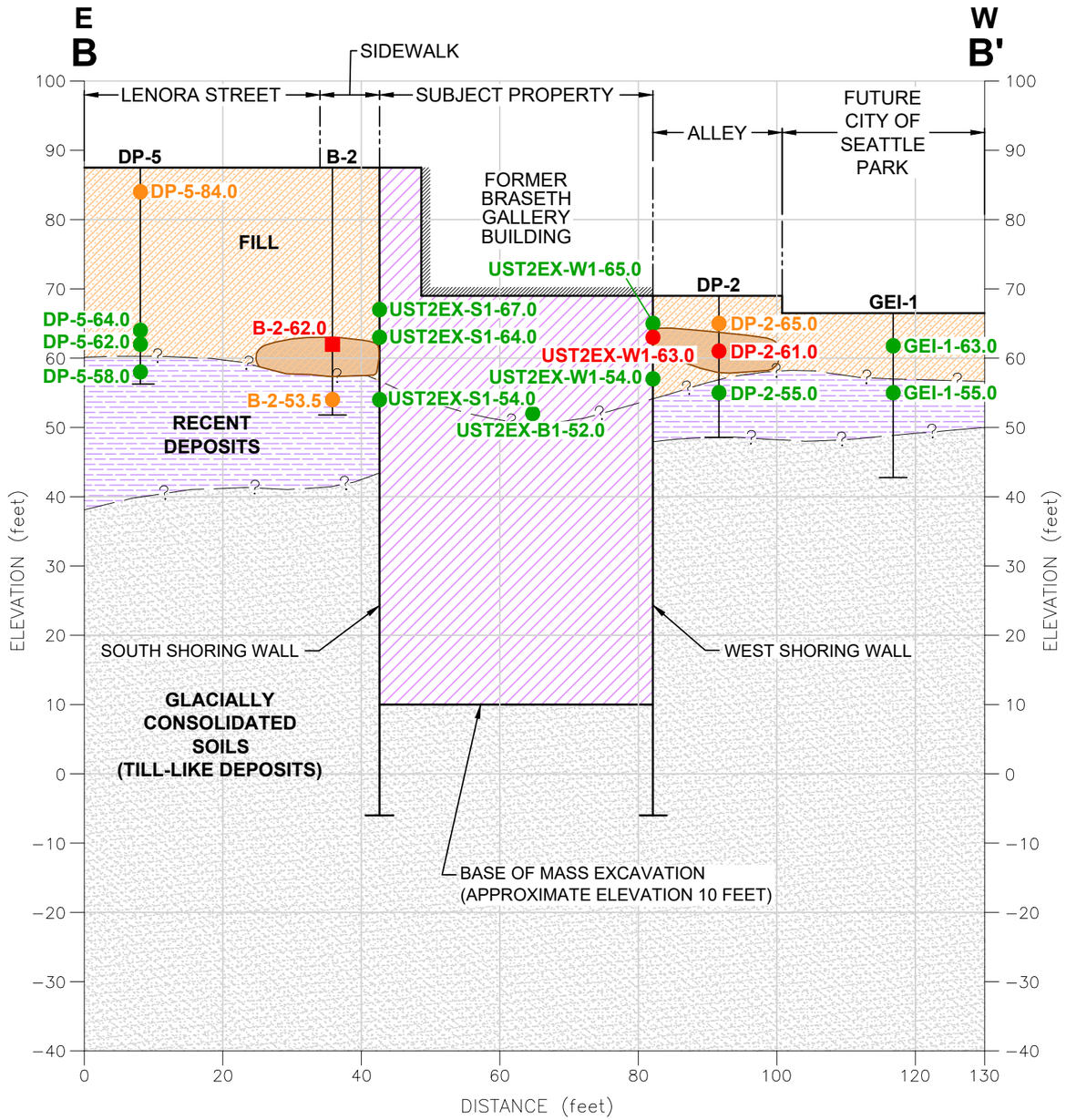
- Contaminant concentration greater than the MTCA Method A Cleanup Level
- Contaminant concentration less than the MTCA Method A Cleanup Level
- Contaminant not detected
- Sample not submitted for analyte testing
- Soil Sample
- Soil Boring
- Former Monitoring Well
- Approximate extent of utility excavation
- Mass excavation limits
- Approximate known extent of residual PAHs and/or petroleum-contaminated soil with MTCA exceedance
- Interpreted extent of gasoline and benzene contaminated soil with MTCA exceedance at Subject Property from an off property source
- Cross Section
- Subject Property
- King County Parcel
- 0660000545 Parcel Number

Post-Cleanup Soil Conditions at the Subject Property and Alley

Cleanup Action Plan
820 Lenora Street
Seattle, Washington

Aspect Consulting	SEP-2019	BY: FK / KES	FIGURE NO. 7
	PROJECT NO. 170291	REVISED BY: TDR	

Basemap Layer Credits || Pictometry, King County



Notes:

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. Refer to Figure 7 for location of Cross Section.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure.
4. Figure sourced from GeoEngineers, Cross Section A-A' Figure 6, 2016.

Legend

- Soil sample with gasoline- and heavy oil-range hydrocarbons and toluene detections greater than MTCA Method A Cleanup Levels
- Soil sample with MTCA exceedance for diesel- and heavy oil-range hydrocarbons and PAHs
- Soil sample with petroleum hydrocarbons and PAHs detections less than MTCA Method A Cleanup Levels
- Soil sample non-detect for petroleum hydrocarbons and PAHs

MTCA Model Toxics Control Act

PAHs Polycyclic aromatic hydrocarbons

DP-2 Exploration and approximate location

Soil contact

Approximate thickness of residual MTCA exceeding petroleum- and PAHs- contaminated soil

Fill

Recent deposits

Glacially consolidated soils (till-like deposits)

Former Braseth Gallery building was demolished and soil at the subject property was excavated to an approximate Elevation of 7 feet, NAVD88, during mass excavation

0 20 40
Feet

Cross Section B-B'

Cleanup Action Report
820 Lenora Street
Seattle, Washington

Aspect Consulting	SEP-2019	BY: FK / TDR	FIGURE NO. 9
	PROJECT NO. 170291	REV BY: ---	