FARALLON CONSULTING

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March 28, 2022

Tamara Welty, L.G., L.H.G.
Washington State Department of Ecology
Toxics Cleanup Program
Northwest Regional Office
15700 Dayton Avenue North
Shoreline, Washington 98133

RE: RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
UNION STATION FACILITY SITE ID NO.: 2060
411 SOUTH JACKSON STREET
SEATTLE, WASHINGTON
FARALLON PN: 2644-001

Dear Tamara:

Farallon Consulting, L.L.C. (Farallon) has prepared this letter on behalf of Union Station Associates, LLC in response to Washington State Department of Ecology (Ecology) comments regarding the Periodic Review for Union Station Facility Site ID No.: 2060 at 411 South Jackson Street in Seattle, Washington (the Property) dated April 2021 (2021 Periodic Review) (Figure 1).

Farallon completed a comprehensive review and evaluation of current and historical conditions at the Property and relevant adjacent properties in the vicinity to address Ecology's comments in the 2021 Periodic Review. The review and evaluation focused on, but was not limited to, the following information: the *2019 Groundwater Monitoring Compliance Report, Union Station Property, Seattle, Washington* dated January 6, 2020, prepared by Landau Associates, Inc. (Landau); the report *Identification of Potential Upgradient Sources, Union Station Property, Seattle, Washington* dated September 3, 1999, prepared by Landau (Potential Upgradient Sources Report); the *Cleanup Action Plan, Union Station Property, Seattle, Washington* dated July 28, 1997, prepared by Landau (CAP); groundwater monitoring laboratory analytical results from October 2021; and numerous other publicly available documents.

In summary, the 2021 Periodic Review provided Ecology's main concerns, which focused on the following: whether the use of background concentrations was appropriate to demonstrate compliance with Property-specific cleanup levels; the potential for migration of constituents of concern (COCs) detected in groundwater from a localized area on the western, down-gradient portion of the Property onto adjacent properties west of the Property; and the potential for vapor intrusion to indoor air at the Property based on current Ecology vapor intrusion guidelines.

Based on our review and evaluation, Farallon concluded that the use of area background concentrations are appropriate because of the widespread placement of contaminated fill material on numerous adjacent properties and properties in the vicinity, specifically in areas directly up-gradient of the Property (Figure 2). A review of groundwater sampling results for west-adjacent properties, which are down-gradient of the Property, confirm no migration of COCs from the

Property to these adjacent properties. Active remediation is not warranted based on the stable groundwater quality conditions documented over the 20 years since redevelopment and the confirmed presence of up-gradient source areas of COCs, which are continuing to migrate onto the Property (Figure 2). Further, active remediation as proposed by Ecology on the down-gradient side of the Property would likely exacerbate groundwater conditions at the Property by potentially mobilizing and drawing contaminants from the confirmed and potential source areas present up-gradient of the Property including but not limited to the confirmed sources in the 5th Avenue right-of-way (ROW) (Figure 2). Detailed responses to Ecology's specific comments are included in the sections below.

Based on these data, it is Farallon's opinion that no additional groundwater monitoring and/or active remediation is warranted at the Property at this time. The Property was redeveloped over 20 years ago, and since redevelopment, no activities have been conducted at the Property that would have caused a release of petroleum hydrocarbons, which are the only COCs present at concentrations exceeding screening levels at the points of compliance on the western Property boundary. Ecology has been aware of up-gradient sources of petroleum hydrocarbons as far back as 1997. Based on the evidence of off-Property sources, and geotechnical boring logs and groundwater monitoring data in the 5th Avenue South ROW, any remediation required by Ecology should focus on the up-gradient confirmed and potential sources of the contamination. Union Station Associates, LLC is not liable for those releases and should not be responsible to remediate impacts caused by off-Property sources. Farallon recommends resumption of the agreed upon schedule presented in the CAP with the next groundwater monitoring event to be conducted in 2024.

Prior to proceeding with the further action required by Ecology in the Periodic Review, Union Station Associates, LLC would like to request a meeting with Ecology to further discuss the shift in Ecology's evaluation and understanding of the confirmed and potential off-property sources proximate to the Property that are impacting groundwater quality in the local vicinity.

SITE DESCRIPTION AND BACKGROUND

The Property consists of King County Parcel Nos. 8809700000, 5247801292, and 7669800004, and is developed with a commercial building, including office and retail use (Figure 2). The Property spans six city blocks and includes portions at the grade with 5th Avenue South at an approximate elevation of 35 feet City of Seattle Datum to an elevation of 10 feet City of Seattle Datum for the portion of the Property at grade with 4th Avenue South, which is beneath elevated viaduct portions of South Jackson Street, South Airport Way. Existing structures at the Property include the Union Station historical building on the north; Metro International Transit Station, lid constructed above the Metro transit lanes, Metro bus tunnel south portal, and portions of elevated viaducts for adjacent streets on the east; and commercial buildings and parking garages constructed in the early 2000s on the west and south.

According to the CAP, the Property was originally part of the South Seattle industrial neighborhood. The Property was originally developed in 1874 as the Seattle Gaslight Company, a

coal gasification plant that was constructed on pilings over the tide flats of the Duwamish Bay. In the early 1900s, Vulcan Iron Works was on the southern portion of the Property manufacturing iron, brass, and steel. The area surrounding the Seattle Gaslight Company was backfilled prior to about 1912. The Seattle Gaslight Company was demolished in 1910 and Vulcan Iron Works relocated as the Property was leveled for the construction of the existing Union Station and associated rail lines. Union Station served passengers until 1971. The Property sat dormant for approximately 30 years other than the Seattle Transit bus tunnel project completed in 1990, which is on the eastern portion of the Property adjacent to 5th Avenue South (Figure 1). In 1991, Ecology placed the Property on the Washington Hazardous Sites List.

Landau's Potential Upgradient Sources Report identified multiple sites with confirmed releases that have impacted soil and groundwater quality, and additional sites with current or historical operations with the potential to impact soil and groundwater quality in the vicinity of the Property (Table 1). The following potential up-gradient source sites, which are highlighted in orange on Figure 2, were identified by Landau with a moderate to high risk of impacting the Property:

- Gasoline Service Stations, potential petroleum hydrocarbon impacts;
- Dye Works facility, potential solvent impacts;
- General Motors Truck Center, potential petroleum hydrocarbon impacts; and,
- Commercial dry cleaners, potential solvent impacts.

Landau's Potential Upgradient Sources Report demonstrates the long history of industrial and commercial land use up-gradient of and surrounding the Property. In addition to the confirmed releases and potential source sites identified in Landau's Potential Upgradient Sources Report, Farallon identified the confirmed source area present in the 5th Avenue ROW, highlighted in red on Figure 2.

Landau conducted a remedial investigation in 1996 at the Property to support the planned redevelopment. The remedial investigation identified the following COCs in both soil and groundwater at the Property: carcinogenic polynuclear aromatic hydrocarbons (cPAHs), metals, and total petroleum hydrocarbons as gasoline-, diesel-, and oil-range organics (GRO, DRO, and ORO, respectively). Landau concluded that the source of contamination at the Property is attributed to historical operations associated with the coal gasification process and foundry. COCs were generally located within a fill layer that was placed on top of the former tide flat surface during historical operations from the late 1800s to early 1900s.

In addition to historical operations on the Property, Landau noted the potential for migration of hazardous substances onto the Property from up-gradient and off-Property sources identified in Landau's Potential Upgradient Sources Report (Figure 2). The migration of COCs from up-gradient sources onto the Property is evident by the detection of DRO, GRO, and dissolved arsenic in groundwater samples collected from up-gradient monitoring wells B-4, B-4R, B-6, and/or B-6R (Figure 3) at concentrations that exceed those detected in groundwater samples collected from wells on the Property and down-gradient monitoring wells, MW-101R, MW-102R, and MW-105.

It should be noted that the highest concentrations of COCs in the Property vicinity were detected in up-gradient monitoring well B-4 installed in the 5th Avenue ROW (Figures 5 and 7).

Cleanup at the Property was implemented under the Model Toxics Control Act Cleanup Regulation (MTCA), Chapter 173-340 Washington Administrative Code (WAC 173-340) and conducted in conjunction with the redevelopment of the western portion of the Property. Cleanup activities at the Property were completed under Prospective Purchaser Consent Decree 97-2-18936-5SEA, King County Superior Court. The cleanup action elements included the removal of impacted fill comprising soil, coal, and construction debris within the redevelopment footprint, paving of exposed soil, groundwater monitoring, institutional controls, and a contingency to allow for potential groundwater extraction and treatment.

The cleanup action was implemented during the construction of the Union Station development subgrade foundation features in 1999 to 2000. The Environmental Covenant recorded with the Property documents that residual impacts of cPAHs and metals remain in soil and cPAHs, petroleum hydrocarbons, benzene, and arsenic detected at concentrations exceeding MTCA cleanup levels remain in groundwater at the Property. The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for groundwater are established under WAC 173-340-720. Property-specific cleanup levels were established in the CAP approved by Ecology and incorporated into the Prospective Purchaser Consent Decree No. 97-2-18963-5 SEA. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every 5 years.

In accordance with the Prospective Purchaser Consent Decree No. 97-2-18963-5 SEA and CAP, periodic groundwater monitoring is required at down-gradient wells MW-101R, MW-102R, MW-104, MW-105, MW-107R, MW-108R, and up-gradient wells B-4R and B-6R (Figure 3). Based on *2019 Groundwater Monitoring Compliance Report, Union Station Property, Seattle, Washington*, dated January 6, 2020, prepared by Landau , COCs were detected at concentrations exceeding the cleanup levels established for the Property, which, according to Ecology, triggers the requirements described in the CAP for a groundwater monitoring event.

GEOLOGY AND HYDROGEOLOGY

Hart Crowser & Associates Inc. (Hart Crowser) conducted a *Subsurface Exploration and Geotechnical Engineering Study* dated February 6, 1986 (Geotechnical Study), for the 5th Avenue South Viaduct and Retaining Wall project (Attachment A). According to the Geotechnical Study, soil on the eastern portion of the Property consists of various fill material to an approximate elevation of -15 to -20 feet City of Seattle Datum or 30 to 40 feet below ground surface (bgs), which is underlain by native marine deposits. Prior to redevelopment of the western portion of the Property in the early 2000s, Landau encountered fill material to a depth of approximately 25 feet bgs overlying the native marine deposits.

The nearest surface water body is Elliot Bay, located approximately 0.5 mile west of the Property. Based on a 2019 annual groundwater monitoring event, groundwater was encountered at an elevation of 1 to 13 feet City of Seattle Datum, or 20 to 35 feet bgs, in up-gradient monitoring

wells B-4R and B-6R and at an elevation of -1 to 4 feet City of Seattle Datum, or 6 to 12 feet below finished grade, of the parking garage (Figures 3 through 6). Synoptic depth-to-groundwater measurements from the monitoring wells at the Property and corresponding calculated groundwater elevations are provided in Table 2. The interpreted groundwater flow direction of the shallow groundwater-bearing zone within the fill layer is to the west, consistent with regional groundwater flow west toward Elliot Bay.

RESPONSE TO ECOLOGY COMMENTS

Provided below in italics are Ecology's specific conclusions made regarding the effectiveness of the completed cleanup action as a result of the 2021 Periodic Review and Farallon's corresponding responses in plain text:

- *Groundwater concentrations of acenaphthene, benzene, arsenic, benzo(a)anthracene, chrysene, diesel-range TPH, and gasoline-range TPH exceed cleanup levels at the conditional point of compliance (the western property boundary) and this contaminated groundwater appears to be migrating off-property. Therefore, the remedy is not protective of groundwater and marine surface water located downgradient of the property. Based on this, the Site failed periodic review.*

  During the 2019 groundwater monitoring event, petroleum hydrocarbons and/or polynuclear aromatic hydrocarbons (PAHs) and cPAHs were detected at concentrations exceeding site-specific groundwater cleanup levels and/or applicable screening levels in only two monitoring wells, MW-101R and MW-105, at the western Property boundary conditional point of compliance (Figure 7; Tables 3 and 4).

  Monitoring wells MW-101R and MW-105 were redeveloped and resampled in September 2021 (Figure 7). Petroleum hydrocarbons were detected at concentrations exceeding applicable screening levels in groundwater samples collected from monitoring wells MW-101R and MW-105 (Table 3). PAHs and cPAHs were not detected at concentrations exceeding site-specific groundwater cleanup levels in groundwater samples collected from monitoring wells MW-101R and MW-105 (Table 4).

  Between the Property and Elliot Bay, the nearest marine surface water body, there are up to nine cleanup sites listed in Ecology's electronic database with documented releases of hazardous substances to soil and/or groundwater. This includes a cleanup site that is approximately 400 feet west of the Property, which is identified as the North Lot Development Site and assigned Facility Site Identification 5378137 and Cleanup Site Identification 1966 (Figure 2).

  According to the *Annual Groundwater and Indoor Vapor Monitoring – 2020, North Lot* dated March 27, 2020, prepared by EHSI, a groundwater monitoring event was conducted on January 21, 2020 (Attachment C). The monitoring wells MW-16D, MW-21, and MW-22 on the western boundary of the North Lot Development Site were sampled for similar COCs, GRO, DRO, ORO, benzene, cPAHs, and arsenic (Figure 3). All COCs were reported non-detect at

the laboratory practical quantitation limit (PQL) or less than the site-specific cleanup levels in groundwater samples collected from monitoring wells MW-16D, MW-21, and MW-22 (Figure 7, Attachment C).

Based on these data, if groundwater is migrating off of the Property, it is not impacting groundwater quality at the Ecology-listed North Lot Site approximately 400 feet west and down-gradient of the Property, and/or the nearest marine surface water body, which is even farther down-gradient of the Property.

- *It should be noted that area background is not allowed to be used for compliance purposes; the cleanup levels outlined in the CAP (Table 1) are to be used. It should also be noted that the current regulation now includes TPH cleanup levels to protect surface water. Therefore, Method A groundwater cleanup levels should be used to evaluate compliance for TPH at the conditional point of compliance.*

  The Certificate of Completion issued by Ecology[1] in 2005 states that the origin of TPH is still unclear at present and that Ecology would not delist the Property at that time. Ecology agreed that continued groundwater monitoring was an appropriate response. As presented in the CAP for the Property, the source of TPH in groundwater is unclear and presumed to be from an up-gradient, off-Property source.

  With the historical land use and significant placement of fill material in the vicinity of the Property, it is relevant to evaluate for migration of COCs from potential and confirmed up-gradient and off-Property sources that likely are impacting groundwater quality at the Property. Cross-sections were prepared to summarize previous geotechnical and environmental investigations completed at and adjacent to the Property (Figures 4 through 6).

  - East-adjacent 5th Avenue South ROW – The Geotechnical Study indicated 25 to 35 feet of fill beneath the 5th Avenue South ROW (Attachment A, Figures 5 and 6). The boring log for former monitoring well B-4, located up-gradient and off the Property, indicated the presence of chemical odors at depths of 33 to 50 feet bgs and a black coal layer within the fill. Several other borings advanced in the 5th Avenue South ROW also indicated the presence of chemical odors and/or coal layers within the fill layer. This is consistent with the historical trends of TPH documented in groundwater samples collected at monitoring well B-4 from 1999 to 2004. Monitoring well B-4 was screened in the main portion of the source material and groundwater samples from the well had the highest concentrations of COCs detected in the Property vicinity (Table 3). The subsequent replacement well, B-4R, was installed and screened in a shallower portion of the subsurface i.e., NOT fully penetrating across the zone of contaminated source material (Figure 5).
  - Publix Apartments and Historical Rainier Heat & Power Company steam heating plant are located directly east and across 5th Avenue South from the Property

[1]Union Station Purchaser Consent Decree No. 97-2-18936-5SEA – Certificate of Completion dated January 20, 2005, prepared by Ecology.

(Figures 2 and 5). The *Underground Storage Tank Closure & Supplemental Investigation Report, Publix Renovation Project, 504 Fifth Avenue South, Seattle, Washington 98104* dated August 15, 2017, prepared by the Riley Group documented the release and cleanup associated with two 8,500-gallon underground storage tanks (USTs) with Bunker C fuel. The tops of the Bunker C fuel USTs were encountered at an approximate elevation of 14 feet City of Seattle Datum. An opinion was requested from Ecology's UST Program; however, no opinion was granted because Ecology's UST Program does not regulate UST systems used for storing heating oil for consumptive use on the premises.

- Landau's Potential Upgradient Sources Report identifies several potential upgradient sources and a long history of industrial land use in the vicinity of the Property (Figure 2, Table 1, and Attachment B). The historical sites considered to have the greatest potential for impacting groundwater quality at the Property are Jay's Union Service Station and Rhodes Domes Stadium Service Station (500 South Jackson Street), McKales Corp Gas Station (320 5th Avenue South), and KS Serv Gas Station (720 5th Avenue South). If potential spills, overfills, or leaking USTs or supply piping occurred at these stations, there would have been a high probability of impacting groundwater quality conditions at the Property.
- In addition to the sites noted above, Farallon also has local knowledge of similar impacts on properties in the vicinity of the Property attributed to historical coal gasification operations in the vicinity.

Ecology's 2010 Periodic Review for the Property noted a change in TPH cleanup levels since 1997 and referenced MTCA Method A and B cleanup levels. Ecology noted that overall, there was a decline in DRO at the point of compliance and agreed with the use of background-based screening levels from B-4/B-4R for petroleum hydrocarbons, benzene, acenaphthene, and cPAHs and for arsenic using data from B-6R (Tables 3 through 5). Ecology stated that concentrations of petroleum-related constituents in 2009 samples from well B-4R are lower than historical concentrations at B-4, indicating that the off-Property source may no longer be present, or the groundwater plume from an off-Property source may no longer be in the immediate vicinity of well B-4/B-4R. Ecology stated that in any case, because the exceedances do not represent contamination originating on the Property, they should not be used to trigger groundwater treatment or an increase in the frequency of groundwater monitoring.

Union Station Associates, LLC would like to discuss the change in Ecology's opinion regarding the relevance of background sources and their potential impacts on groundwater quality for the Property and further action required in the April 2021 Periodic Review.

For the purposes of this response, the groundwater screening levels protective of marine surface water are presented in Table 3 to evaluate current groundwater conditions at the point of compliance for the Property.[2]

- *Required contingency actions are outlined in the CAP. Groundwater monitoring is currently being performed every 5 years. According to the CAP, if any sample exceeds cleanup levels, another sample is to be collected one quarter later. If the second sample exceeds cleanup levels, quarterly monitoring for one year is to commence. Further contingency actions based on those findings (such as monitoring frequency changes or groundwater treatment), as well as the appropriate methods of analyzing the monitoring data, are described in Table 3 of the CAP (Appendix 6.3). However, it should be noted that groundwater treatment may be the most likely result, based on historical monitoring data. Therefore, another option is to focus resources on groundwater treatment rather than additional quarterly monitoring at this time.*

  Based on Table 3 of the CAP, when conducting groundwater monitoring every 5 years, if any sample exceeds a cleanup level, then one quarter later another set of groundwater samples should be collected. If the second sample is less than the cleanup levels, return to annual groundwater monitoring or if the second sample exceeds cleanup levels commence quarterly monitoring for 1 year. If at the end of 1 year of quarterly monitoring, the concentrations of COCs detected in groundwater are less than the cleanup levels based on a 95 percent upper confidence limit (UCL) then return to annual monitoring for a period of 3 years; or if the UCL for COCs detected in groundwater exceed the cleanup levels, show an increasing trend, and the last sample exceeds the cleanup level, then implement groundwater treatment if directed by Ecology to prevent contamination from leaving the Property, and continue monitoring for another four quarters. The CAP notes that the after the first 2 years of system operations, that Ecology or their designated agent will assume operation and funding the system.

  Based on Farallon's review of the CAP and the 2019 groundwater monitoring event, groundwater samples needed to be collected from two monitoring wells, MW-101R and MW-105, where petroleum hydrocarbons and/or PAHs and cPAHs were detected at concentrations exceeding site-specific groundwater cleanup levels and/or applicable screening levels at the western Property boundary conditional point of compliance (Figure 7; Tables 3 and 4). Monitoring wells MW-101R and MW-105 were redeveloped and resampled in October 2021 (Figure 7). Petroleum hydrocarbons were detected at concentrations exceeding applicable screening levels in groundwater samples collected from monitoring wells MW-101R and MW-105 (Table 3). PAHs and cPAHs were not detected at concentrations exceeding site-specific groundwater cleanup levels in groundwater samples collected from monitoring wells MW-101R and MW-105 (Table 4).

[2]Technical Memorandum No. 23 regarding Concentrations of Gasoline and Diesel Range Organics Predicted to be Protective of Aquatic Receptors in Surface Waters dated August 25, 2021, from Jeff Johnston of Ecology to Interested Persons.

Based on the requirements of Table 3 of the CAP, the only action required at this time is a quarterly groundwater monitoring event based on the exceedances of petroleum hydrocarbons in MW-101R and MW-105 from the October 2021 monitoring event. The groundwater analytical data confirm that the concentrations of COCs in groundwater have been stable over a period of 20 years, are not increasing, there is no confirmed off-Property migration to the south, and petroleum hydrocarbons are detected at higher concentrations up-gradient and off the Property than on the Property, confirming the migration of petroleum hydrocarbons onto the Property from an up-gradient source(s) of contamination (Figure 7). The existing groundwater data set does not trigger the criteria from Table 3 of the CAP to implement and start the operation of the groundwater pump and treat system at the Property.

With the confirmed evidence of an up-gradient and off-Property source and known residual impacts from deposited fill and coal material at and surrounding the Property, Farallon is concerned that the operation of a groundwater pump and treat system on the down-gradient portion of the Property has the potential to exacerbate existing groundwater quality by drawing contaminated groundwater with documented higher concentrations of COCs in the adjacent up-gradient 5th Avenue ROW onto the Property (Figure 7). Based on Farallon's review of the available information, the 2021 groundwater monitoring event, and confirmed up-gradient, off-Property contamination from the confirmed source area in the 5th Avenue South ROW, Farallon does not recommend active remediation at this time, and based on Table 3 of the CAP, Farallon recommends an annual groundwater monitoring event in 2022 then returning to monitoring groundwater every 5 years.

Union Station Associates, LLC, would like to discuss the relevance of background sources and their potential impacts on groundwater quality for the Property, results of the October 2021 monitoring well development and groundwater monitoring event, and further action required in the April 2021 Periodic Review.

Farallon reviewed the groundwater sampling field forms for the monitoring event conducted in August 2019, which indicated turbid to cloudy conditions in all nine monitoring wells sampled. Based on these data, there is a potential for interference with the analytical results because groundwater samples with high turbidity indicates a greater density of suspended solids in the groundwater sample. COCs can sorb onto the suspended soil particles, resulting in concentrations reported for turbid groundwater samples that typically are biased high, and therefore, are not representative of groundwater quality.

Farallon also noted that the majority of the monitoring wells have a negative oxidation reduction potential, indicating a reducing environment (Table 6). The presence of organic material, including TPH, which is present in groundwater hydraulically up-gradient of the Property, has the potential to cause reducing conditions in groundwater, and arsenic is more soluble under reducing conditions. Increased solubility of either naturally occurring metals or from metals present in fill material can be mobilized into solution.

Farallon conducted a well development and monitoring event in October 2021. During the October 2021 groundwater monitoring event, depth to water was measured at monitoring wells MW-101R, MW-102R, HC-103, MW-104, MW-105, MW-107R, MW-108R, B-4R, and B-6R and groundwater samples were collected and analyzed for select COCs from monitoring wells MW-101R, MW-102R, MW-105, MW-107R, B-4R, and B-6R.

Based on the information reviewed and presented above for the North Lot Development Site and King Street Center Site, off-Property migration of COCs beyond the points of compliance is not impacting these down-gradient sites (Figure 7, Attachment C). Farallon concurs with the conclusions made by Landau that there are confirmed and potential up-gradient off-Property sources (Figure 2, Table 1, Attachments A and B). Please reference the boring logs for historical monitoring well B-4 and several other borings advanced in the adjacent 5th Avenue ROW, which confirm a source of COCs resulting from the fill material present with strong chemical odors and/or coal layers (Figures 4 through 6, Attachment B).

- *Vapor intrusion does not appear to have been evaluated at the Site. For example, groundwater concentrations of benzene and naphthalene exceed the groundwater screening levels for vapor intrusion. A vapor intrusion assessment should be completed for the Site to determine if vapor intrusion from any of the contaminants of concern is a risk to building occupants.*

  A preliminary vapor intrusion evaluation was performed in accordance with the draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action revised April 2018, prepared by Ecology (Ecology Guidance); and Implementation Memorandum No. 14 regarding the Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion dated March 31, 2016, from Jeff Johnston of Ecology to Interested Persons (Ecology VI Memorandum). In accordance with the Ecology VI Memorandum, if benzene and/or petroleum hydrocarbons are detected at a concentration less than 5,000 and 30,000 micrograms per liter (µg/l), respectively, in groundwater and there is a vertical separation distance of 6 feet, the initial vapor intrusion (VI) assessment is complete.

  Benzene and petroleum hydrocarbons have not been detected at concentrations exceeding Ecology VI Memorandum groundwater screening levels for vertical separation in groundwater samples collected from Property monitoring wells (Table 3).

  Although the building was constructed prior to Ecology publishing the 2009 Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, revised February 2016 and April 2018, it was constructed with a 6-mil vapor barrier beneath a 6-inch-thick building concrete foundation and a parking garage with an exhaust system that extends beneath Buildings 1 and 2 (Figure 3).

- *The Restrictive Covenant for the property is in place and appears to be effective in protecting public health and the environment from exposure to hazardous substances by direct contact on the subject property itself. However, the Restrictive Covenant only*

applies to the subject property, and is not protective of any downgradient properties that may be impacted.

Union Station Associates, LLC agrees that the restrictive environmental covenant recorded for the Property is effective at protecting human health and the environment from exposure to hazardous substances by limiting direct contact with the installation of a 6-mil vapor barrier and concrete foundation or paving other surfaces and restricting the use of shallow groundwater.

Based on the current groundwater data for the North Lot Development Site west of the Union Station Property, it does not appear that the down-gradient North Lot Development Site is being impacted by residual groundwater contamination at the Property. In addition, when the North Lot Development Site was developed, the final remedy included installation of a contaminant-resistant vapor barrier and recording of an environmental covenant for residual contamination present from impacted fill and/or historical retail gasoline service stations.

Figure 2 provides a summary of nearby listed Ecology cleanup sites and any recent development activities.

RESPONSE TO ECOLOGY COMMENTS

Based on the above conclusions, Ecology requested that the property owner take the actions listed below in bold in accordance with the CAP and provide associated reports to Ecology prior to the next periodic review. Farallon's corresponding responses for each action are provided in plain text.

Follow CAP contingency action plan (groundwater monitoring, developing a groundwater treatment plan, etc.).

Prior to conducting any subsequent groundwater monitoring as required by the CAP and Prospective Purchaser Consent Decree, Farallon recommends that all of the monitoring wells be redeveloped in an effort to reduce interference attributed to turbid groundwater samples. Overall, the concentrations of COCs have remained similar in magnitude over the past eight sampling events and as described above none of the current conditions trigger the requirement for implementing groundwater treatment.

Prior to conducting the further action required, Union Station Associates, LLC and Farallon request a meeting with Ecology to discuss potential and confirmed off-Property sources that are likely impacting groundwater quality at the Property.

Characterize the extent of contamination that is migrating off-property (additional groundwater monitoring wells may be necessary).

The current groundwater data for the North Lot Development Site west of the Property and King Street Center Site, confirm that these down-gradient sites are NOT impacted by potential migration of residual groundwater contamination at the Property (Figure 7, Attachment C).

COCs detected at concentrations exceeding screening levels were historically detected at higher concentrations in off-Property and up-gradient monitoring well B-4, which is why Ecology approved the evaluation of background area concentrations. Union Station Associates, LLC would like to discuss the change in Ecology's opinion regarding the relevance of background sources and their potential impacts on groundwater quality for the Property and further action required in the April 2021 Periodic Review.

Complete a vapor intrusion assessment.

In accordance with the Ecology VI Memorandum, if benzene and/or petroleum hydrocarbons are detected at a concentration less than 5,000 and 30,000 µg/l, respectively, in groundwater and there is a vertical separation distance of 6 feet, the initial VI assessment is complete.

Benzene and petroleum hydrocarbons have not been detected at concentrations exceeding Ecology VI Memorandum groundwater screening levels for vertical separation in groundwater samples collected from Property monitoring wells (Table 3). In accordance with the Ecology VI Memorandum, the initial VI assessment is complete and there is no potential vapor intrusion exposure pathway. Therefore, no further assessment of VI is needed at the Property.

It is the property owner's responsibility to continue to inspect the property to assure that the integrity of the remedy is maintained.

Union Station Associates, LLC is committed to continue with the monitoring requirements described in the CAP and PPCD but disagree with additional investigation and/or proceeding with any active remediation based on no confirmed risk to human health and environment at this time.

CLOSING

Please contact the undersigned at (425) 295-0800 if you have questions or need additional information.

Sincerely,

Farallon Consulting, L.L.C.

Suzy Stumpf, P.E.
Principal Engineer

J. Riley Conkin, L.G., L.H.G
Principal Geologist

Attachments: Figure 1, Site Vicinity Plan
Figure 2, Union Station Property and Surrounding Area
Figure 3, Site Plan with Monitoring Well Locations
Figure 4, Cross Section A-A'

Figure 5, Cross Section B-B'
Figure 6, Cross Section C-C'
Figure 7, Groundwater Analytical
Table 1, Summary of Sites with Moderate to High Potential for Impacting Groundwater at Union Station
Table 2, Groundwater Elevations
Table 3, Groundwater Analytical Results for TPH and BTEX
Table 4, Groundwater Analytical Results for PAHs
Table 5, Groundwater Analytical Results for Dissolved Arsenic
Table 6, Groundwater Water Quality Parameters
Attachment A, Subsurface Exploration and Geotechnical Engineering Study by Hart Crowser
Attachment B, Identification of Potential Upgradient Sources
Attachment C, Annual Groundwater and Indoor Vapor Monitoring – 2020, North Lot by EHSI

cc: Tena Seeds, Washington State Department of Ecology
Coleen Spratt, Union Station Associates, LLC
Kevin Daniels, Kevin Daniels Real Estate
Brad Marten, Marten Law

SES/JRC:cm/mbg

FIGURES

RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
Union Station Property
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE SOUTH, WASHINGTON, DATED 2013

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SCALE IN FEET

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Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

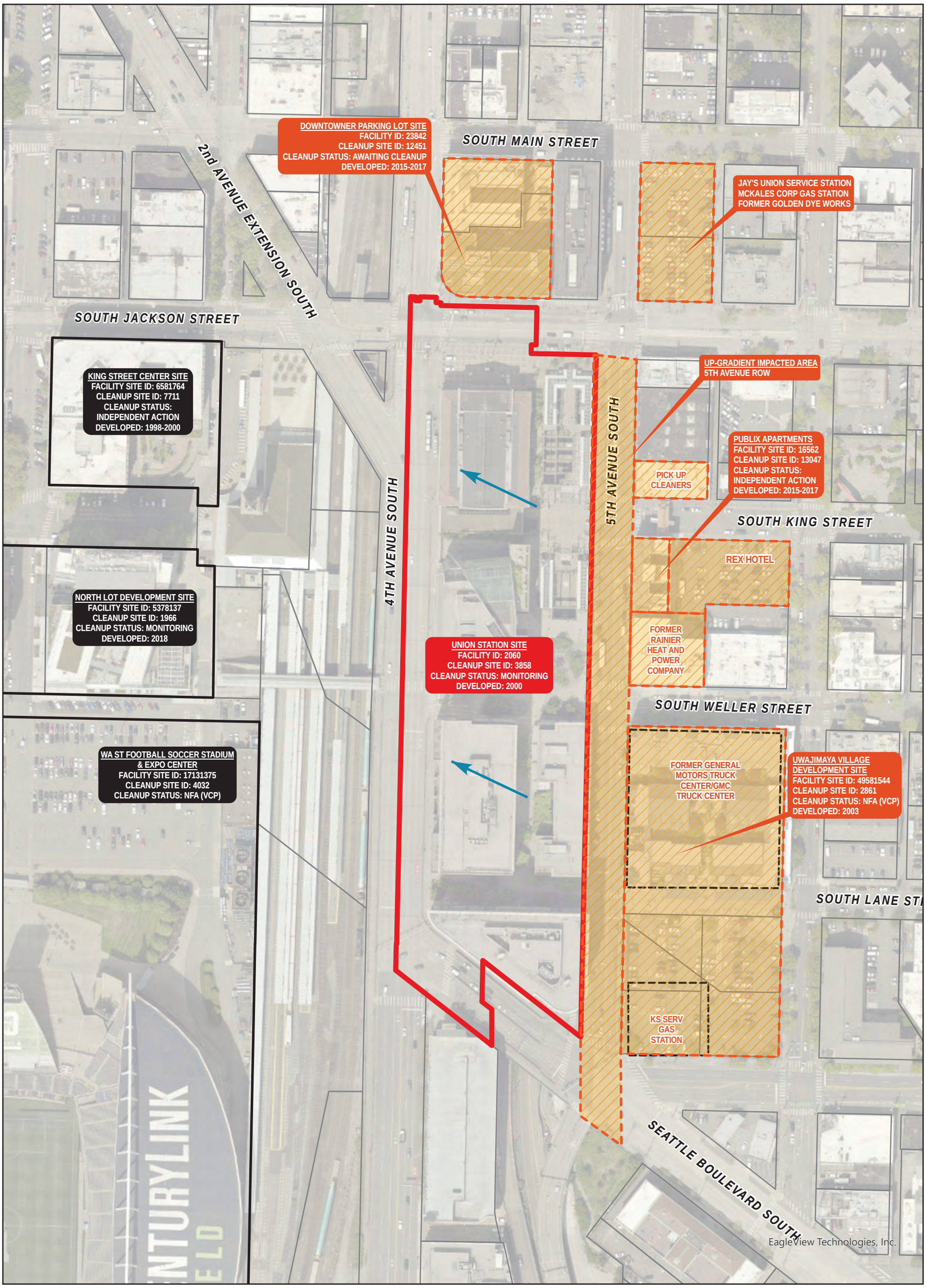
FIGURE 1

SITE VICINITY PLAN
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN: 2644-001

Drawn By: vpehlivan Checked By: SS Date: 9/28/2021 Disc Reference:

Path: Q:\Projects\2644 Union Station\001 505 Union Station\Mapfiles\004\Figure-01_SiteVicinityMap.mxd



LEGEND

- UNION STATION PROPERTY KING COUNTY PARCEL BOUNDARY/ EXTENT OF BELOW GRADE FEATURES
- POTENTIAL UPGRADIENT SOURCE (LANDAU 1999)
- SURROUNDING PROPERTY OF INTEREST
- FORMER SITE FEATURE
- KING COUNTY PARCEL BOUNDARY
- INFERRED DIRECTION OF GROUNDWATER FLOW

NFA = NO FURTHER ACTION
VCP = VOLUNTARY CLEANUP PROGRAM

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SCALE IN FEET

NOTES:
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FIGURE 2

UNION STATION PROPERTY AND SURROUNDING AREA
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN: 2644-001

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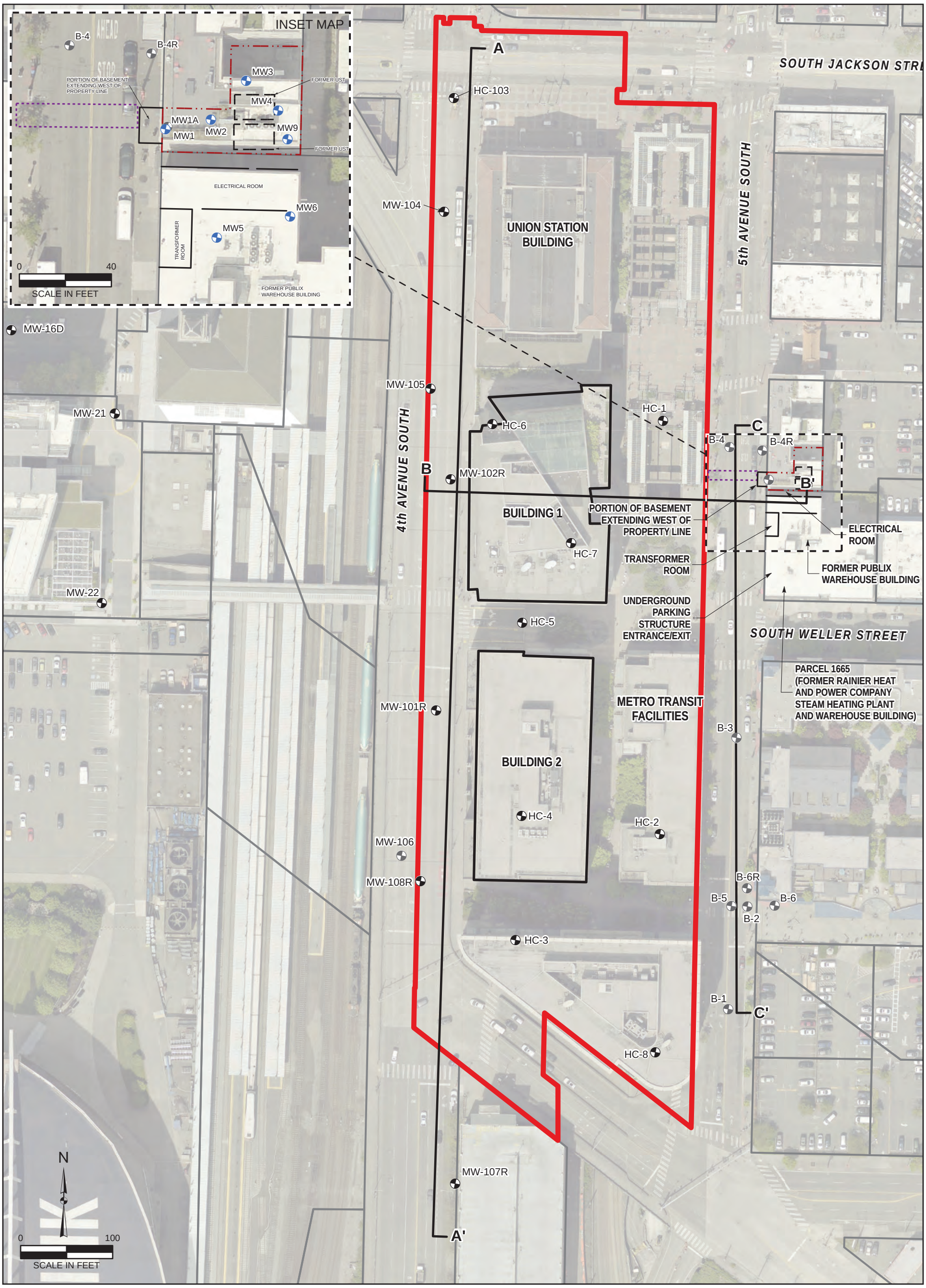

LEGEND

- ABANDONED MONITORING WELL
- MONITORING WELL
- BUILDING FEATURE
- UNDERGROUND TUNNEL
- BUILDING OUTLINE
- A A' LINE OF CROSS SECTION
- AREA OF INVESTIGATION (SUB-BASEMENT)
- CLOSED IN PLACE UST
- UNION STATION PROPERTY KING COUNTY PARCEL BOUNDARY/ EXTENT OF BELOW GRADE FEATURES
- KING COUNTY PARCEL BOUNDARY

RGI = RILEY GROUP INCORPORATED
UST = UNDERGROUND STORAGE TANK

NOTES:
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FIGURE 3

SITE PLAN WITH MONITORING WELL LOCATIONS
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN: 2644-001

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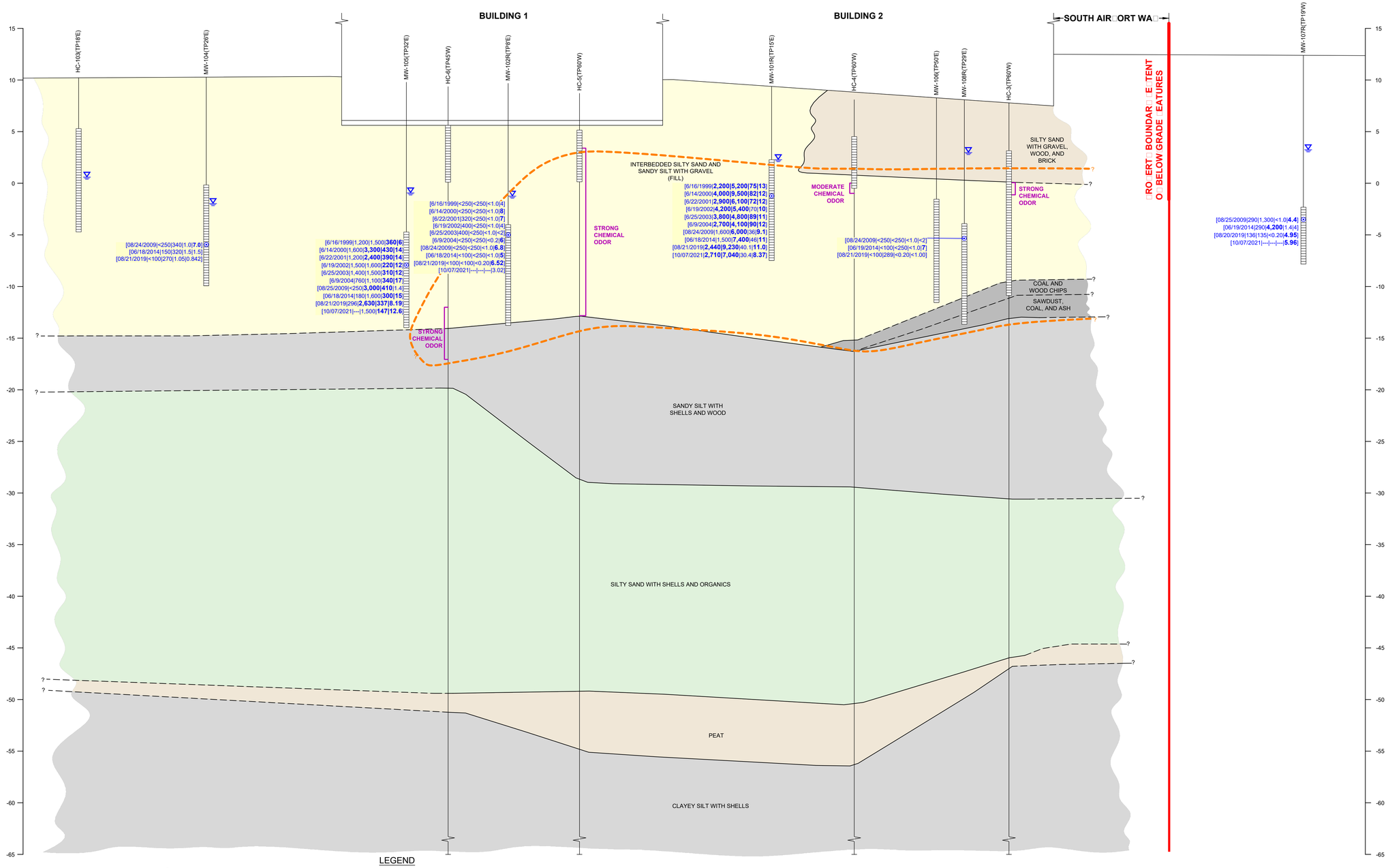

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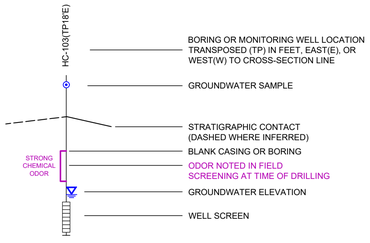

[08/24/2009|1,600|**6,000**|36|**9.1**] = GROUNDWATER ANALYTICAL RESULT [DATE|DRO|GRO|BENZENE|DISSOLVED ARSENIC] IN MICROGRAMS PER LITER
< = INDICATES CONCENTRATIONS NOT DETECTED AT OR EXCEEDING THE LISTED REPORTING LIMIT
--- = DENOTES SAMPLE NOT ANALYZED
BOLD = DENOTES CONCENTRATIONS EXCEEDING SITE-SPECIFIC CLEANUP LEVELS AND/OR SCREENING LEVELS PROTECTIVE OF AQUATIC RECEPTORS
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
= APPROXIMATE EXTENT OF IMPACTED FILL MATERIAL WITH CHEMICAL ODOR NOTED AND/OR COAL MATERIAL

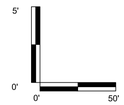

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FIGURE 4

CROSS SECTION A-A'
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN:2644-001

Drawn By: NM Checked By: SS Date: 2/21/2022

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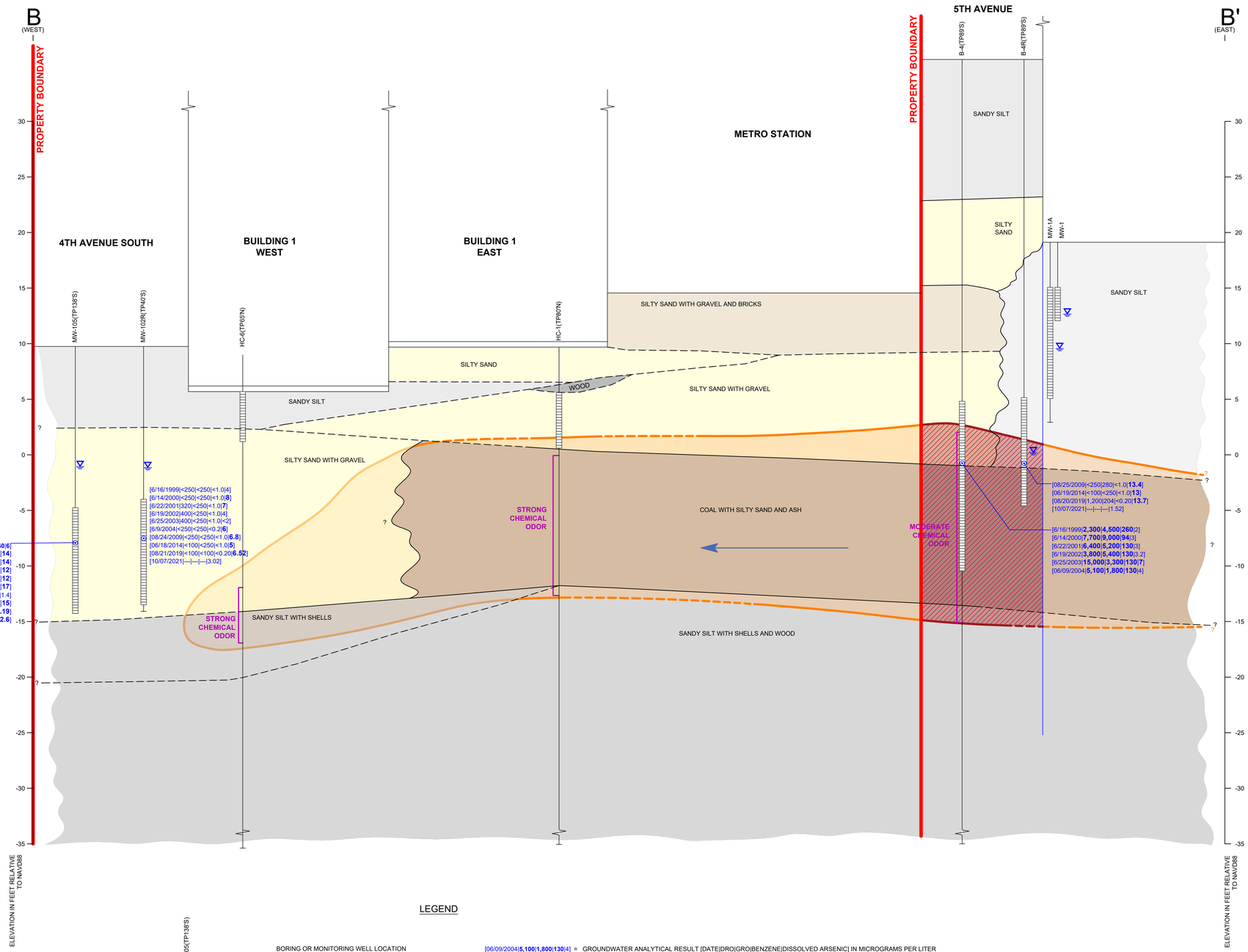
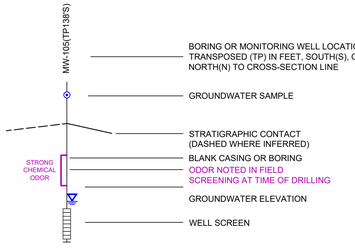


LEGEND



[06/09/2004|**5,100**|**1,800**|**130**|4] = GROUNDWATER ANALYTICAL RESULT [DATE|DRO|GRO|BENZENE|DISSOLVED ARSENIC] IN MICROGRAMS PER LITER
< = INDICATES CONCENTRATIONS NOT DETECTED AT OR EXCEEDING THE LISTED REPORTING LIMIT
--- = DENOTES SAMPLE NOT ANALYZED
BOLD = DENOTES CONCENTRATIONS EXCEEDING SITE-SPECIFIC CLEANUP LEVELS AND/OR SCREENING LEVELS PROTECTIVE OF AQUATIC RECEPTORS
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

= APPROXIMATE EXTENT OF IMPACTED FILL MATERIAL WITH CHEMICAL ODOR NOTED AND/OR COAL MATERIAL

= CONFIRMED SOURCE AREA, 5TH AVENUE ROW (HART CROWSER 1986)

= INFERRED GROUNDWATER FLOW DIRECTION

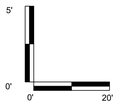


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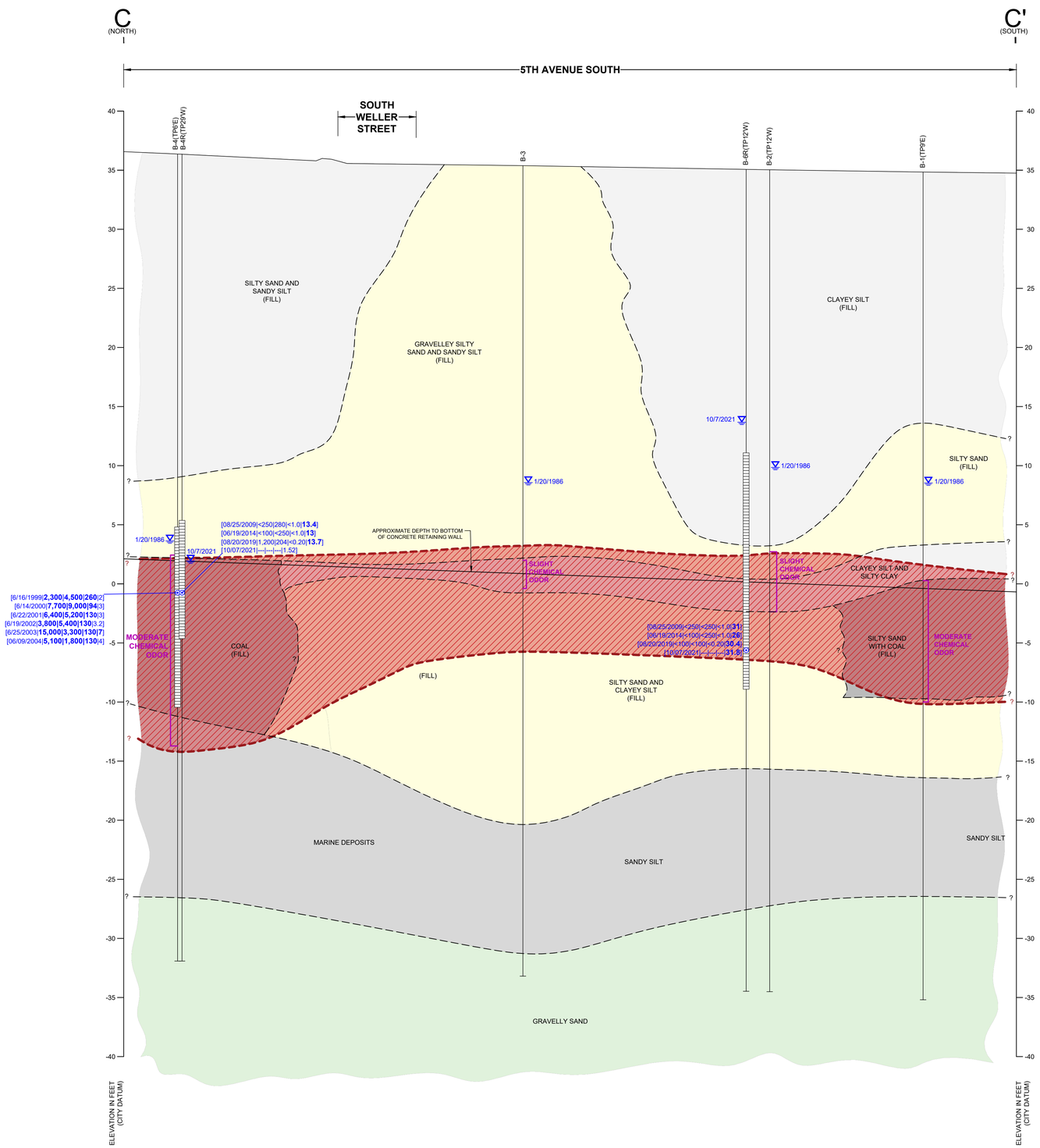
FIGURE 5

CROSS SECTION B-B'
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN:2644-001

Drawn By: NM Checked By: SS Date: 3/18/22



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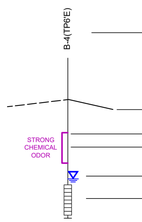

- BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, EAST(E), OR WEST(W) TO CROSS-SECTION LINE
- STRATIGRAPHIC CONTACT (DASHED WHERE INFERRED)
- BLANK CASING OR BORING
- ODOR NOTED IN FIELD SCREENING AT TIME OF DRILLING
- GROUNDWATER ELEVATION
- WELL SCREEN

- [06/09/2004|5,100|1,800|130|4] = GROUNDWATER ANALYTICAL RESULT [DATE|DRO|GRO|BENZENE|DISSOLVED ARSENIC] IN MICROGRAMS PER LITER
- < = INDICATES CONCENTRATIONS NOT DETECTED AT OR EXCEEDING THE LISTED REPORTING LIMIT
- --- = DENOTES SAMPLE NOT ANALYZED
- **BOLD** = DENOTES CONCENTRATIONS EXCEEDING SITE-SPECIFIC CLEANUP LEVELS AND/OR SCREENING LEVELS PROTECTIVE OF AQUATIC RECEPTORS
- DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
- GRO = TPH AS GASOLINE-RANGE ORGANICS
- NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
- = APPROXIMATE EXTENT OF IMPACTED FILL MATERIAL WITH CHEMICAL ODOR NOTED AND/OR COAL MATERIAL
- = CONFIRMED SOURCE AREA, 5TH AVENUE ROW (HART CROWSER 1986)

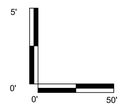

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FIGURE 6

CROSS SECTION C-C'
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN:2644-001

Drawn By: NM Checked By: SS Date: 3/18/2022

NOTES:
GROUNDWATER ANALYTICAL RESULTS REPORTED AS:
DATE | DRO | GRO | BENZENE | DISSOLVED ARSENIC
GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
BOLD = DENOTES CONCENTRATIONS EXCEEDING SITE-SPECIFIC CLEANUP LEVELS
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE LISTED REPORTING LIMIT
--- = DENOTES SAMPLE NOT ANALYZED
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
RGI = RILEY GROUP INCORPORATED
UST = UNDERGROUND STORAGE TANK

MW-104
08/24/2009|<250|340|1.0|**7.0**
06/18/2014|150|320|1.5|1.5
08/21/2019|<100|270|1.05|0.842

MW-16D
08/04/2017|<50|<100|<0.8|<1
11/08/2017|<60|<100|<0.8|<1
02/08/2018|<30|<100|<0.8|<1
05/10/2018|<50|<100|<0.8|<1
09/28/2018|<50|<100|<0.8|<1
12/19/2018|<50|<100|<0.8|<1
01/21/2020|<50|<100|<0.8|1.06

MW-105
6/16/1999|1,200|1,500|**360**|**6**
6/14/2000|1,600|**3,300**|**430**|**14**
6/22/2001|1,200|**2,400**|**390**|**14**
6/19/2002|1,500|1,600|**220**|**12**
6/25/2003|1,400|1,500|**310**|**12**
6/9/2004|760|1,100|**340**|**17**
8/25/2009|<250|**3,000**|**410**|1.4
6/18/2014|180|1,600|**300**|**15**
8/21/2019|296|**2,630**|**337**|**8.19**
10/7/2021|---|1,500|**147**|**12.6**

B-4R
08/25/2009|<250|280|<1.0|**13.4**
06/19/2014|<100|<250|<1.0|**13**
08/20/2019|1,200|204|<0.20|**13.7**
10/07/2021|---|---|---|1.52

B-4
6/16/1999|**2,300**|**4,500**|**260**|2
6/14/2000|**7,700**|**9,000**|**94**|3
6/22/2001|**6,400**|**5,200**|**130**|3
6/19/2002|**3,800**|**5,400**|**130**|3.2
6/25/2003|**15,000**|**3,300**|**130**|**7**
6/9/2004|**5,100**|**1,800**|**130**|4

MW-21
08/02/2017|<50|<100|<0.8|**6.23**
11/08/2017|<60|<100|<0.8|**4.34**
02/08/2018|<30|<100|<0.8|1.74
05/10/2018|<50|<100|<0.8|2.06
09/28/2018|<50|<100|<0.8|**5.42**
12/20/2018|<50|<100|<0.8|2.64
03/20/2019|<50|<100|<0.8|1.67
06/20/2019|<50|<100|<0.8|2.96
01/21/2020|<50|<100|<0.8|1.47

MW-102R
6/16/1999|<250|<250|<1.0|4
6/14/2000|<250|<250|<1.0|**8**
6/22/2001|320|<250|<1.0|**7**
6/19/2002|400|<250|<1.0|4
6/25/2003|400|<250|<1.0|<2
6/9/2004|<250|<250|<0.2|**6**
8/24/2009|<250|<250|<1.0|**6.8**
6/18/2014|<100|<250|<1.0|**5**
8/21/2019|<100|<100|<0.20|**6.52**
10/7/2021|---|---|---|3.02

MW-22
08/02/2017|180|<100|<0.8|**7.21**
11/08/2017|330|<100|<0.8|**5.97**
02/08/2018|640|<100|<0.8|1.72
05/10/2018|520|<100|<0.8|1.34
09/28/2018|<50|<100|<0.8|**4.58**
12/20/2018|180|<100|<0.8|1.53
07/14/2019|170|<100|<0.8|2.07
01/21/2020|100|<100|<0.8|1.27

MW-101R
6/16/1999|**2,200**|**5,200**|**75**|**13**
6/14/2000|**4,000**|**9,500**|**82**|**12**
6/22/2001|**2,900**|**6,100**|**72**|**12**
6/19/2002|**4,200**|**5,400**|70|**10**
6/25/2003|**3,800**|**4,800**|**89**|**11**
6/9/2004|**2,700**|**4,100**|**90**|**12**
8/24/2009|1,600|**6,000**|36|**9.1**
6/18/2014|1,500|**7,400**|46|**11**
8/21/2019|**2,440**|**9,230**|40.1|**11.0**
10/7/2021|**2,710**|**7,040**|30.4|**8.37**

MW-108R
08/24/2009|<250|<250|<1.0|<2
06/19/2014|<100|<250|<1.0|**7**
08/21/2019|<100|289|<0.20|<1.00

MW-106

B-6R
08/25/2009|<250|<250|<1.0|**31**
06/19/2014|<100|<250|<1.0|**26**
08/20/2019|<100|<100|<0.20|**30.4**
10/07/2021|---|---|---|**31.8**

B-6
06/16/1999|<250|<250|<1.0|**13**

MW-107R
08/25/2009|290|1,300|<1.0|**4.4**
06/19/2014|290|**4,200**|1.4|4
08/20/2019|136|135|<0.20|**4.95**
10/07/2021|---|---|---|**5.96**

SOUTH JACKSON STREET
5th AVENUE SOUTH
4th AVENUE SOUTH
SOUTH WELLER STREET
CONFIRMED SOURCE AREA - 5TH AVENUE SOUTH ROW
UNION STATION BUILDING
BUILDING 1
BUILDING 2
METRO TRANSIT FACILITIES
ELECTRICAL ROOM
TRANSFORMER ROOM
FORMER PUBLIX WAREHOUSE BUILDING
UNDERGROUND PARKING STRUCTURE ENTRANCE/EXIT
PARCEL 1665 (FORMER RAINIER HEAT AND POWER COMPANY STEAM HEATING PLANT AND WAREHOUSE BUILDING)
A
A'
B
B'
C
C'
B-1
B-2
B-3
B-4
B-4R
B-5
B-6

INSET MAP
MW1
MW1A
MW2
MW3
MW4
MW5
MW6
MW9
FORMER UST
FORMER UST
PORTION OF BASEMENT EXTENDING WEST OF PROPERTY LINE
ELECTRICAL ROOM
TRANSFORMER ROOM
STOP
0 40
SCALE IN FEET

N
0 100
SCALE IN FEET

LEGEND
- ABANDONED MONITORING WELL
- MONITORING WELL
- MONITORING WELL (RGI)
- INTERPRETED DIRECTION OF GROUNDWATER FLOW
- BUILDING FEATURE
- UNDERGROUND TUNNEL
- BUILDING OUTLINE
- A A' LINE OF CROSS SECTION
- AREA OF INVESTIGATION (SUB-BASEMENT)
- CLOSED IN PLACE UST
- UNION STATION PROPERTY KING COUNTY PARCEL BOUNDARY/ EXTENT OF BELOW GRADE FEATURES
- KING COUNTY PARCEL BOUNDARY
- CONFIRMED SOURCE AREA (HART CROWSER 1986)

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FIGURE 7

GROUNDWATER ANALYTICAL
UNION STATION PROPERTY
SEATTLE, WASHINGTON

FARALLON PN: 2644-001

Drawn By: vbachmann | Checked By: SS | Date: 3/18/2022 | Disc Reference:

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TABLES

RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
Union Station Property
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

Table 1
Summary of Sites with Moderate to High Potential for Impacting Groundwater at Union Station
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Name of Business	Street Address	Impact Potential	Potential Contaminants	Known Contamination
Assisted Living Facility (former site of New Eagle Garage)	700 Block of 6th Ave S	High	TPH, BTEX, PAHs	X
Clean Up Shop	216a 5th Ave S	Moderate	Solvents	
East-West Investments	6th Ave S & S Lane St	High	TPH, BTEX	X
Fort Lawton ARSR	654 S Washington St	Moderate	TPH, BTEX	
General Motors Truck Center	600 5th Ave S	Moderate	TPH	
GMC Truck Center	508 S Lane St	Moderate	TPH	
K S Serv Gas Station	720 5th Ave S	Moderate	TPH, BTEX	
Kunitsugu Tajuro	515 Yesler Way	Moderate	Solvents	
McKales Corp Gas Station	320 5th Ave S	Moderate	TPH, BTEX	
Oshio Tamezo (former site of Golden Dye Works)	310 5th Ave S	Moderate	Solvents	
Pick Up Cleaners	506 S King St	Moderate	Solvents	
Rex Hotel	657 S King St	Moderate	TPH	X
Rhodes Domes Stadium Service Station (former site of Jay's Union Service Station)	500 S Jackson St	Moderate	TPH, BTEX	
Seventh Avenue Service	701 S Jackson St	Moderate	TPH, BTEX	

BTEX = benzene, toluene, ethylbenzene, and xylenes

TPH = total petroleum hydrocarbons

PAHs = polycyclic aromatic hydrocarbons

Table 2
Groundwater Elevations
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Well Location	Sampled By	Total Well Depth (feet bgs)[1]	Screened Interval Depth (feet bgs)[1]	Screened Interval Elevation (feet Seattle Datum)[1]	Top of Casing Elevation (feet Seattle Datum)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet Seattle Datum)[2]
B-4R[4]	Landau	40.61	31.0 to 41.0	5.74 to -4.26	36.35	6/8/2004	38.96	-2.61
	Landau					9/14/2009	35.50	0.85
	Landau					6/17/2014	35.58	0.77
	Landau					8/20/2019	35.41	0.94
	Farallon					10/7/2021	34.42	1.93
B-6R	Landau	43.98	23.98 to 43.98	10.4 to -9.6	34.38	6/8/2004	22.49	11.89
	Landau					9/14/2009	22.63	11.75
	Landau					6/17/2014	21.94	12.44
	Landau					8/20/2019	21.49	12.89
	Farallon					10/7/2021	20.71	13.67
MW-101R	Landau	16.26	6.97 to 16.97	2.8 to -7.2	9.06	6/8/2004	6.29	2.77
	Landau					9/14/2009	6.63	2.43
	Landau					6/17/2014	6.03	3.03
	Landau					8/20/2019	6.14	2.92
	Farallon					10/7/2021	6.04	3.02
MW-102R	Landau	22.3	13.67 to 23.67	-3.7 to -13.7	8.60	6/8/2004	9.75	-1.15
	Landau					9/14/2009	9.99	-1.39
	Landau					6/17/2014	9.29	-0.69
	Landau					8/20/2019	9.43	-0.83
	Farallon					10/7/2021	9.33	-0.73
HC-103	Landau	13.49	4.8 to 14.8	5.5 to -4.5	8.99	6/8/2004	7.45	1.54
	Landau					9/14/2009	8.00	0.99
	Landau					6/17/2014	8.13	0.86
	Landau					8/20/2019	8.37	0.62
	Farallon					10/7/2021	8.16	0.83
MW-104	Landau	19.69	10.75 to 20.75	-0.1 to -10.1	9.59	6/8/2004	10.88	-1.29
	Landau					9/14/2009	11.20	-1.61
	Landau					6/17/2014	11.12	-1.53
	Landau					8/20/2019	11.41	-1.82
	Farallon					10/7/2021	11.14	-1.55

Table 2
Groundwater Elevations
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Well Location	Sampled By	Total Well Depth (feet bgs)[1]	Screened Interval Depth (feet bgs)[1]	Screened Interval Elevation (feet Seattle Datum)[1]	Top of Casing Elevation (feet Seattle Datum)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet Seattle Datum)[2]
MW-105	Landau	22.92	14.57 to 24.07	-4.5 to -14.0	8.92	6/8/2004	9.75	-0.83
	Landau					9/14/2009	9.80	-0.88
	Landau					6/17/2014	9.24	-0.32
	Landau					8/20/2019	9.58	-0.66
	Farallon					10/7/2021	9.95	-1.03
MW-107R	Landau	19.43	14.49 to 19.99	-1.5 to -7.0	12.43	6/8/2004	8.27	4.16
	Landau					9/14/2009	8.65	3.78
	Landau					6/17/2014	8.78	3.65
	Landau					8/20/2019	8.24	4.19
	Farallon					10/7/2021	8.18	4.25
MW-108R	Landau	22.18	12.96 to 22.96	-3.4 to -13.4	8.78	6/8/2004	4.60	4.18
	Landau					9/14/2009	4.65	4.13
	Landau					6/17/2014	5.21	3.57
	Landau					8/20/2019	5.19	3.59
	Farallon					10/7/2021	5.91	2.87
North Lot Development								
MW-16D	Landau	---	---	---	17.60	1/21/2020	---	7.79
MW-18D	Landau	---	---	---	17.17	1/21/2020	---	---
MW-19	Landau	---	---	---	17.49	1/21/2020	---	11.96
MW-20	Landau	---	---	---	17.51	1/21/2020	---	10.92
MW-21	Landau	---	---	---	17.17	1/21/2020	---	8.45
MW-22	Landau	---	---	---	17.14	1/21/2020	---	12.47

Notes:

--- denotes information unknown

[1] In feet below ground surface.

[2] In feet referenced to City of Seattle Datum, unless otherwise noted.

[3] In feet below top of well casing.

[4] Elevations in feet referenced to NAVD88.

bgs = below ground surface

Farallon = Farallon Consulting, L.L.C.

Landau = Landau Associates, Inc.

NAVD88 = North American Vertical Datum of 1988

Table 3
Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
B-4	Landau	6/16/1999	AK50J	2,300	< 500	4,500	**260** J	3.8	**310** J	8.2	11	---
	Landau	12/16/1999	BD02I	2,900	< 500	3,100 J	**140**	< 10	200	160	< 10	---
	Landau	3/22/2000	BK98J	3,600	< 500	6,200	**150**	< 10	220	< 10	< 10	---
	Landau	6/14/2000	BT43J	7,700	1,300	9,000	**94**	< 10	160	130	< 10	---
	Landau	9/27/2000	CF72G	4,700	1,300	4,800	**130**	< 10	200 J	< 10	< 10	---
	Landau	12/20/2000	CP44A	5,900	1,100	6,000	**140**	< 5.0	220	< 5.0	6.7	---
	Landau	3/14/2001	CV96H	4,200	< 500	6,000	**120**	< 5.0	200	5.3	6	---
	Landau	6/22/2001	DH51I	6,400 J	1,200	5,200	**130**	< 5.0	220	< 5.0	5.4	---
	Landau	9/26/2001	DQ61G	8,000 J	2,900 J	6,500	**140**	< 5.0	230	< 5.0	6	---
	Landau	12/19/2001	DY69A	2,600	570	6,000 J	**130**	< 5.0	190	< 5.0	< 5.0	---
	Landau	3/20/2002	EE79H	6,100	< 2,500	5,700	**150**	< 5.0	230	< 5.0	5.6	---
	Landau	6/19/2002	EM41H	3,800	620	5,400	**130**	< 5.0	190	< 5.0	< 5.0	---
	Landau	6/25/2003	FP47G/P	15,000	6,800	3,300	**130**	< 5.0	160	< 5.0	< 5.0	---
	Landau	6/9/2004	GS18I	5,100	2,000	1,800	**130**	< 5.0	110	< 5.0	< 5.0	---
B-4R	Landau	8/25/2009	PL85B	< 250	< 500	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	06/19/2014	YO99D	< 100	< 200	< 250 J	< 1.0 J	< 1.0 J	< 1.0 J	< 2.0 J	< 1.0 J	---
	Landau	8/20/2019	19H0298	1,200 J	780 J	204	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.60
B-6	Landau	6/16/1999	AK50H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
B-6R	Landau	12/16/1999	BD02H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/22/2000	BK98H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/22/2000*	BK98I	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/14/2000	BT43I	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/27/2000	CF72F	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/20/2000	CP44H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/14/2001	CV96I	< 250 J	< 500 J	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/22/2001	DH51D	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/26/2001	DQ61H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/19/2001	DY69B	< 250	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/20/2002	EE79I	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/20/2002*	EE79G	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/19/2002	EM41I	250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/25/2003	FP47H/Q	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/9/2004	GS18J	< 250	< 500	< 250	< 0.2	< 0.2	< 0.2	< 0.4	0.2	---
	Landau	8/25/2009	PL85A	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	06/19/2014	YO99E	< 100	< 200	< 250	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	---
	Landau	8/20/2019	19H0298	< 100	< 200	< 100	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.60
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

Table 3
Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-101R	Landau	6/16/1999	AK50A	2,200	< 500	5,200	**75**	16 J	160 J	55 J	33 J	---
	Landau	6/16/1999*	AK50B	2,600	< 500	4,500	**87**	23 J	**280** J	93 J	54 J	---
	Landau	12/16/1999	BD02A	2,400	< 500	4,700	54	< 10	120	42	23	---
	Landau	3/22/2000	BK98G	3,500	< 500	6,200	64	12	210	61	33	---
	Landau	6/14/2000	BT43A	4,000	< 500	9,500	**82**	12	**290**	71	41	---
	Landau	9/27/2000	CF72H	3,000	< 1,000	5,700	**72**	< 10	240 J	56 J	23 J	---
	Landau	12/20/2000	CP44B	3,100	< 500	6,700	64	18	200	90	42	---
	Landau	3/14/2001	CV96A	3,500	< 500	6,000	**82**	11	250	64	36	---
	Landau	6/22/2001	DH51F	2,900	< 500	6,100	**72**	14	250 J	83 J	39 J	---
	Landau	6/22/2001*	DH51E	2,900	< 500	7,400	64	18	130 J	110 J	52 J	---
	Landau	9/26/2001	DQ61A	3,400	< 500	5,300	54	8.4	170	60	27	---
	Landau	12/19/2001	DY69C	2,400	< 500	6,300 J	48 J	< 5.0 J	130 J	46 J	18 J	---
	Landau	3/20/2002	EE79A	3,300	< 500	6,300	**78**	7.6	260	92	37	---
	Landau	6/19/2002	EM41A	4,200	< 500	5,400	70	5.7	250	46	23	---
	Landau	6/19/2002*	EM41B	3,800	< 500	5,400	69	5.5	240	43	22	---
	Landau	6/25/2003	FP47A/J	3,800	< 500	4,800	**89**	< 5.0	**300**	45	17	---
	Landau	6/25/2003*	FP47F/O	3,900	< 500	4,800	**96**	4.1	260	48	19	---
	Landau	6/9/2004	GS18F	2,700	< 500	4,100	**90**	5.5	210	38	17	---
	Landau	6/9/2004*	GS18G	2,600	< 500	4,100	**92**	6.0	230	43	19	---
	Landau	8/24/2009	PL72A	1,600	< 500	6,000	36	2.2	150	25	18 J	---
	Landau	8/24/2009*	PL72E	1,500	< 500	6,000	36	2.3	150	25	< 1.0 J	---
	Landau	06/18/2014	YO69E	1,500	< 200	7,400	46	5.9	200	42	34	---
	Landau	8/21/2019	19H0324	2,440	< 200	9,230	40.1	1.9	120	15	19	33.9
	Farallon	10/7/2021	MW-101R-20211007	2,710 PRES F-17	< 195 PRES	7,040 F-03	30.4	< 5.00	100	---	---	21.5
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

Table 3
Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-102R	Landau	6/16/1999	AK50C	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/16/1999	BD02C	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/16/1999*	BD02B	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/22/2000	BK98D	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/14/2000	BT43B	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/14/2000*	BT43E	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/27/2000	CF72A	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/20/2000	CP44E	280	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/20/2000*	CP44I	310	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/14/2001	CV96B	320	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/22/2001	DH51B	320	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/26/2001	DQ61B	340	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/26/2001*	DQ61I	320	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/19/2001	DY69D	370	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/20/2002	EE79B	300	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/19/2002	EM41C	400	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/25/2003	FP47B/K	400	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/9/2004	GS18E	< 250	< 500	< 250	< 0.2	< 0.2	< 0.2	< 0.4	< 0.2	---
	Landau	8/24/2009	PL72B	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	06/18/2014	YO69D	< 100	< 200	< 250	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	---
	Landau	8/21/2019	19H0324	< 100	< 200	< 100	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.60
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

Table 3
Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
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Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-104	Landau	6/16/1999	AK50E	420	< 500	320	7.0	2.1	5.2	6.0	4.5	---
	Landau	12/16/1999	BD02E	420	< 500	290	< 10	< 10	< 10	< 10	< 10	---
	Landau	3/22/2000	BK98B	520	< 500	320	< 10	< 10	< 10	< 10	< 10	---
	Landau	6/14/2000	BT43D	440	< 500	530	2.2	< 2.0	2.3	4.0	< 2.0	---
	Landau	9/27/2000	CF72C	500	< 500	290	1.4	< 1.0	1.2 J	2.4 J	< 1.0	---
	Landau	12/20/2000	CP44F	500	< 500	360	1.4	< 1.0	1.0	2.8	1.0 J	---
	Landau	3/14/2001	CV96C	560	< 500	370	1.9	< 1.0	1.2	3.1	1.2	---
	Landau	6/22/2001	DH51C	380	< 500	310	1.7	< 1.0	1.5	2.2	< 1.0	---
	Landau	9/26/2001	DQ61C	390	< 500	260	1.0	< 1.0	< 1.0	1.8	< 1.0	---
	Landau	12/19/2001	DY69E	470	< 500	260 J	1.6	< 1.0	< 1.0	1.9	< 1.0	---
	Landau	3/20/2002	EE79C	480	< 500	290	2.1	< 1.0	1.4	2.7	< 1.0	---
	Landau	6/19/2002	EM41D	360	< 500	< 250	1.1	< 1.0	< 1.0	1.9	< 1.0	---
	Landau	6/25/2003	FP47C/L	460	< 500	< 250	1.5	< 1.0	1.1	1.6	< 1.0	---
	Landau	6/9/2004	GS18B	260	< 500	< 250	0.7	< 0.2	0.6	1.5	< 0.2	---
	Landau	8/24/2009	PL72D	< 250	< 500	340	1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	06/18/2014	YO69B	150	< 200	320	1.5	< 1.0	< 1.0	< 2.0	< 1.0	---
	Landau	8/21/2019	19H0324	< 100	< 200	270	1.05	0.20	0.94	0.80	0.30	1.10
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

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Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
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Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-105	Landau	6/16/1999	AK50I	1,200	< 500	1,500	**360**	52	65	82	46	---
	Landau	12/16/1999	BD02F	1,500	< 500	1,800	**170**	48	38	52	22	---
	Landau	3/22/2000	BK98C	1,800	< 500	2,100	**300**	51	66	77	36	---
	Landau	6/14/2000	BT43F	1,600	< 500	3,300	**430**	38	88	82	46	---
	Landau	9/27/2000	CF72I	1,600	< 500	2,300	**360**	53 J	81 J	86 J	37 J	---
	Landau	9/27/2000*	CF72D	1,500	< 500	2,600	**340**	70 J	100 J	110 J	57 J	---
	Landau	12/20/2000	CP44C	1,500	< 500	2,500	**200**	30	47	52	27	---
	Landau	3/14/2001	CV96D	1,200	< 500	2,700	**310**	30	76	69	42	---
	Landau	6/22/2001	DH51G	1,200	< 500	2,400 J	**390**	23	82	60	42	---
	Landau	9/26/2001	DQ61D	1,600	< 500	2,300 J	**330**	33	69	56	37	---
	Landau	12/19/2001	DY69F	1,400	< 500	2,100 J	**270** J	18 J	56 J	38 J	29 J	---
	Landau	3/20/2002	EE79D	1,600	< 500	2,000	**330**	29	68	47	29	---
	Landau	6/19/2002	EM41E	1,500	< 500	1,600 J	**220**	22	50	36	21	---
	Landau	6/25/2003	FP47D/M	1,400	< 500	1,500	**310**	32	52	37	19	---
	Landau	6/9/2004	GS18D	760	< 500	1,100	**340**	41	49	39	15	---
	Landau	8/25/2009	PL85D	< 250	< 500	3,000	**410**	92	66	66	24	---
	Landau	06/18/2014	YO69C	180	< 200	1,600	**300**	63	43	38	16	---
	Landau	8/21/2019	19H0324	296	< 200	2,630	**337**	33.9	33.5	24.4	10.9	35.4
	Farallon	10/7/2021	MW-105-20211007	---	---	1,500 F-03 V-01	**147** V-01	15.4 V-01	17.9 V-01	---	---	17.6 V-01
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

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Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-107R	Landau	6/16/1999	AK50F	< 250	< 500	550	< 1.0	3.7	22	17	8.6	---
	Landau	12/16/1999	BD02G	580	< 500	990	< 10	< 10	27	19	10	---
	Landau	3/22/2000	BK98A	360	< 500	840	< 10	< 10	23	21	12	---
	Landau	6/14/2000	BT43G	740	< 500	3,400	< 10	14	73	59	33	---
	Landau	9/27/2000	CF72J	600	< 500	780	< 10	< 10	14 J	13 J	< 10	---
	Landau	12/20/2000	CP44D	540	< 500	1,400	< 5.0	4.9 J	33	24	19	---
	Landau	3/14/2001	CV96E	1,200	< 500	1,800 J	< 5.0	8.6	46	33	23	---
	Landau	3/14/2001*	CV96G	1,100	< 500	1,400 J	1.2	7.6	44	33	23	---
	Landau	6/22/2001	DH51H	890	< 500	1,500	< 5.0	7.3	47	32	20	---
	Landau	9/26/2001	DQ61E	1,900	< 500	3,900	5.7	22	110	89	66	---
	Landau	12/19/2001	DY69G	630	< 500	780 J	< 5.0 J	< 5.0 J	21 J	15 J	11 J	---
	Landau	3/20/2002	EE79E	1,200	< 500	1,200	< 5.0	< 5.0	33	23	15	---
	Landau	6/19/2002	EM41F	1,000	< 500	1,700	< 5.0	< 5.0	32	23	13	---
	Landau	6/25/2003	FP47E/N	1,400	< 500	2,500	< 5.0	9.0	72	45	30	---
	Landau	6/9/2004	GS18C	680	< 500	880	< 5.0	< 5.0	24	15	11	---
	Landau	8/25/2009	PL85C	290	< 500	1,300	< 1.0	< 1.0	15	7.8	5.9	---
	Landau	06/19/2014	YO99C	290	< 200	4,200	1.4	1.1	32	16	11	---
	Landau	8/20/2019	19H0298	136	< 200	135	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.60
	Landau	8/20/2019*	19H0298	< 100	< 200	138	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.60
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

Table 3
Groundwater Analytical Results for TPH and BTEX
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)								
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	m,p-Xylenes[3]	o-Xylene[3]	Total Xylenes[3]
MW-108R	Landau	6/16/1999	AK50G	< 250	< 500	< 250	< 1.0	< 1.0	1.9	< 1.0	< 1.0	---
	Landau	12/16/1999	BD02K	< 250	< 500	< 250	< 1.0	< 1.0	1.3	< 1.0	< 1.0	---
	Landau	3/22/2000	BK98F	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/14/2000	BT43H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/27/2000	CF72E	< 250	< 500	< 250	1.0	< 1.0	2.7 J	1.1 J	< 1.0	---
	Landau	12/20/2000	CP44G	< 250	< 500	< 250	< 1.0	< 1.0	1.4	0.6 J	0.5 J	---
	Landau	3/14/2001	CV96F	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/22/2001	DH51A	< 250	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	9/26/2001	DQ61F	< 250	< 500	250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/19/2001	DY69H	< 250	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	12/19/2001*	DY69I	< 250	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	3/20/2002	EE79F	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/19/2002	EM41G	330	< 500	< 250 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	6/25/2003	FP47I/R	< 250	< 500	< 250	< 1.0	< 1.0	2.5	< 1.0	< 1.0	---
	Landau	6/9/2004	GS18H	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	8/24/2009	PL72C	< 250	< 500	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---
	Landau	06/19/2014	YO99B	< 100	< 200	< 250	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	---
	Landau	06/19/2014*	YO99A	< 100	< 200	< 250	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	---
	Landau	8/21/2019	19H0324	< 100	< 200	289 J	< 0.20 J	< 0.20 J	0.21 J	< 0.40 J	< 0.20 J	< 0.60
Site-Specific Cleanup Level for Groundwater[4]				**NE[5]**	**NE[5]**	**NE[5]**	**71**	**485**	**276**	**NE**	**NE**	**NE**
Groundwater SL Protective of Indoor Air[6]				**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**		**320**
Marine Surface Water SL Protective of Aquatic Receptors[7]				**2,100**		**1,700**	**23**	**102**	**21**	**106**		**106**

NOTES:

Results in **bold** denote concentrations exceeding site-specific cleanup levels.

Results highlighted gold denote concentrations exceeding screening levels protectective of indoor air or aquatic receptors.

< denotes analyte not detected at or above the reporting limit listed.

--- denotes sample not analyzed.

* denotes sample is a field duplicate.

[1]Analyzed by Northwest Method NWTPH-Dx.

[2]Analyzed by Northwest Method NWTPH-Gx.

[3]Analyzed by U.S. Environmental Protection Agency Method 8260/8021MOD.

[4]Site-specific groundwater cleanup levels from Table 1 of the Cleanup Action Plan for Union Station Property prepared by Landau Associates, Inc., July 28, 1997.

[5]If TPH is detected, the data will be reviewed to evaluate whether groundwater is adequately protected pursuant to WAC 173-340-720 (3) (c).

[6]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[1]Marine surface water screening levels protective of aquatic receptors derived from the Washington State Department of Ecology Implementation Memorandum No. 23, Concentrations of Gasoline and Diesel Range Organics Predicted to be Protective of Aquatic Receptors in Surface Waters, dated August 25, 2021.

BTEX = benzene, toluene, ethylbenzene, and xylenes

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

F-03 = The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.

F-17 = no fuel pattern detected. The diesel result represents carbon range C12 to C24, and the oil result represents >C24 to C40

Farallon = Farallon Consulting, L.L.C.

GRO = TPH as gasoline-range organics

J = result is an estimate

Landau = Landau Associates, Inc.

NE = not established

ORO = TPH as oil-range organics

PRES = incomplete field preservation. Additional preservative was added to adjust the pH within the range appropriate for this analysis.

SL = screening Level

V-01 = sample aliquot taken from VOA vial with headspace (air bubble greater than 6mm diameter)

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs										Carcinogenic PAHs							
				Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)perylene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Total Benzofluoranthenes
B-4	Landau	6/16/1999	AK50J	33	---	190	3.7	**280**	82	51	7.3	6.2	6.8	< 1.1	0.44	0.37	0.06 J	0.12	0.13	< 0.11	< 0.11	---
	Landau	6/16/1999	AK50J^	---	---	---	---	---	---	---	---	---	---	---	0.44	0.06 J	---	---	0.37	0.13	0.12	< 0.11
	Landau	12/16/1999	BD02I	5,200	---	860	1.9	**450**	55	59	12	6.1	9.2	< 1.0	0.53	0.43	0.08 J	0.10	0.16	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02I^	---	---	---	---	---	---	---	---	---	---	---	0.53	0.08 J	---	---	0.43	0.16	< 0.10	< 0.10
	Landau	3/22/2000	BK98J	4,100 J	---	580	4.3 J	**350**	100	120	18 J	20 J	19 J	2.4 J	**9.8**	**9.0**	**6.8**	**6.2**	**9.8**	**5.4**	**1.3**	---
	Landau	3/22/2000	BK98J^	---	---	---	---	---	---	---	---	---	---	---	**9.8**	**6.8**	---	---	**9.0**	**9.8**	**6.2**	5.4
	Landau	6/14/2000	BT43J	4,200 J	---	650	2.6	**420**	150	160	22	17	20	1.4	**6.0**	**4.5**	**2.8**	**2.3**	**4.2**	**2.6**	0.28	---
	Landau	6/14/2000	BT43J^	---	---	---	---	---	---	---	---	---	---	---	**6.0**	**2.8**	---	---	**4.5**	**4.2**	**2.3**	2.6
	Landau	9/27/2000	CF72G	3,800 J	---	660 J	2.7	**370** J	110	130	16	13	14 J	< 1.0	**4.0**	**3.3**	**1.3**	**2.5**	**3.1**	**1.6**	0.45	---
	Landau	9/27/2000	CF72G^	---	---	---	---	---	---	---	---	---	---	---	**4.0**	**1.3**	---	---	**3.3**	**3.1**	**2.5**	1.6
	Landau	12/20/2000	CP44A	3,800	---	540	< 30	**390**	120	120	< 30	< 30	< 30	< 30	0.39	0.34 J	0.04 J	0.05 J	0.07 J	< 0.1	< 0.1	---
	Landau	12/20/2000	CP44A^	---	---	---	---	---	---	---	---	---	---	---	0.39	0.04 J	---	---	0.34 J	0.07 J	0.05 J	< 0.10
	Landau	3/14/2001	CV96H	3,100	---	670	8.8	**430**	150	230	28	**42**	46	7.5	**17**	**16**	**9.6**	**13**	**17**	**6.8**	**2.1**	---
	Landau	3/14/2001	CV96H^	---	---	---	---	---	---	---	---	---	---	---	**17**	**9.6**	---	---	**16**	**17**	**13**	6.8
	Landau	6/22/2001	DH51I	3,200	---	510	2.0	**350**	69	79	13	9.3	9.8	< 1.0	1.0	0.83	0.22	0.33	0.34	0.15	< 0.10	---
	Landau	6/22/2001	DH51I^	---	---	---	---	---	---	---	---	---	---	---	1.0	0.22	---	---	0.83	0.34	0.33	0.15
	Landau	9/26/2001	DQ61G	2,600 J	---	450	6.5	**350**	120	130	22	23	32	3.6	**8.3**	**7.4**	**4.3**	**5.6**	**7.2**	**3.6**	0.98	---
	Landau	12/19/2001	DY69A	2,700 J	---	480	3.2	**330** J	88	110	16	14	14	< 1.0	**1.7**	**1.5**	0.61	**1.2**	**1.3**	0.57	< 0.2	---
	Landau	3/20/2002	EE79H	2,400 J	---	510	3.0	**320**	96	110	15	11	11	< 1.0	**1.4**	**1.3** J	0.46	1.0	1.0	0.53	0.2 J	---
	Landau	6/19/2002	EM41H	1,200	---	260	10	**270**	78	69	10	9.1	9.1	< 1.0	0.41	0.36	< 0.10	< 0.10	0.12	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47G/P	710 J	---	160	1.6	120	45	46	9.1	8.3	12	0.53	**2.1**	**2.0**	0.77	0.55	0.16	---	---	---
	Landau	6/9/2004	GS18I	0.41	---	0.46	2.9	69	18	7.8	4.6	9.0	12	0.45	**2.0**	**1.7**	**1.1**	**1.1**	**1.2**	0.44	0.28	---
B-4R	Landau	8/25/2009	PL85B	4.6	---	< 1.0	< 1.0	6.6	< 1.0	1.7	< 1.0	< 1.0	< 1.0	< 1.0	0.37	0.45	0.17	0.26	0.36	0.17	< 0.1	---
	Landau	06/19/2014	YO99D	< 1.1	---	< 1.1	< 1.1	4.2	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 0.12	< 0.12	--	--	< 0.12	< 0.12	< 0.12	< 0.12
	Landau	8/20/2019	19H0298	< 1.1	< 1.1	< 1.1	< 1.1	12.7	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	--	--	< 1.1	< 1.1	< 1.1	< 2.1
	Landau	8/20/2019	19H0298^	---	---	---	---	---	---	---	---	---	---	---	< 0.11	< 0.11	---	---	< 0.11	< 0.11	< 0.11	< 0.22
Site-Specific Cleanup Level for Groundwater[2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs										Carcinogenic PAHs							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
B-6	Landau	6/16/1999	AK50H	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
B-6R	Landau	12/16/1999	BD02H	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98H	4.0 J	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000*	BK98I	< 1.0 J	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43I	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72F	< 1.0	---	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44H	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.03 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96I	3.6	---	< 1.0	< 1.0	< 1.0	< 1.0	1.8	< 1.0	< 1.0	< 1.0	< 1.0	0.13 J	0.13 J	0.05 J	0.08 J	0.09 J	0.04 J	< 0.10 J	---
	Landau	6/22/2001	DH51D	< 1.0	---	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61H	7.1 J	---	1.4	< 1.0	1.1	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	0.26	0.23	0.15	0.16	0.21	0.11	< 0.10	---
	Landau	12/19/2001	DY69B	4.9 J	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79I	4.0 J	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002*	EE79G	2.9 J	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41I	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47H/Q	0.14	---	0.090	< 0.010	0.050	0.020	0.080	0.040	0.060	0.080	< 0.010	0.020	0.020	< 0.010	< 0.01	< 0.01	< 0.01	< 0.01	---
	Landau	6/9/2004	GS18J	< 0.13	---	< 0.030	0.010 J	< 0.14	0.053	0.16	0.065	0.081	0.11	0.019	0.035	0.030	0.016	0.016	0.023	0.016	< 0.01	---
	Landau	8/25/2009	PL85A	2.6	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.19	0.21	0.15	0.11	0.19	0.11	< 0.10	---
	Landau	06/19/2014	YO99E	< 1.2	---	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 0.12	< 0.12	---	---	< 0.12	< 0.12	< 0.12	< 0.12
	Landau	8/20/2019	19H0298	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	---	---	< 1.1	< 1.1	< 1.1	< 2.1
	Landau	8/20/2019	19H0298^	---	---	---	---	---	---	---	---	---	---	---	< 0.11	< 0.11	---	---	< 0.11	< 0.11	< 0.11	< 0.22
Site-Specific Cleanup Level for Groundwater[2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs										Carcinogenic PAHs							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
MW-101R	Landau	6/16/1999	AK50A	4,000	---	450	2.8 J	210	80	74 J	4.8	4.8	3.7	< 1.0	0.19	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/16/1999*	AK50B	3,600	---	400	4.1 J	200	81 J	68 J	5.7	4.8	4.9	< 1.0	0.19	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02A	2,400	---	520	1.7	**290**	60	60	5.6	5.2	5.9	< 1.0	0.27	0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98G	2,800 J	---	440	1.1 J	200	67 J	64 J	4.2 J	3.2 J	3.0 J	< 1.0	0.29	0.22	0.05 J	0.07 J	0.08 J	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43A	4,500 J	---	710	1.8	**340**	110	130	8.7	6.9	6.6	< 1.0	0.39	0.27	0.05 J	0.07 J	0.09 J	0.04 J	< 0.10	---
	Landau	9/27/2000	CF72H	3,000 J	---	480 J	1.5	**280** J	74	80 J	6.5	6.2	6.1 J	< 1.0	0.41	0.30	0.07 J	0.12	0.12	0.05 J	< 0.10	---
	Landau	12/20/2000	CP44B	2,400	---	460	1.8	**330**	95	65	6.4	5.3	5.4	< 1.0	0.27	0.20 J	0.03 J	0.04 J	0.03 J	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96A	3,900	---	590	1.4	**330**	58	59	5.7	5.1	4.8	< 1.0	0.49	0.44	0.20	0.24	0.30	0.14	< 0.10	---
	Landau	6/22/2001	DH51F	3,100	---	600	1.5	**330** J	78	74	7.1	6.1	6.0	< 1.0	0.27	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/22/2001*	DH51E	3,200	---	570	1.3	**330** J	64	63	6.8	5.8	5.5	< 1.0	0.29	0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61A	4,900 J	---	700	2.4	**350**	70	73	6.0	5.4	5.2	< 1.0	0.37	0.27	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69C	2,000 J	---	350	1.0 J	**240** J	72	97	6.9	5.4	5.1	< 1.0	0.16	0.15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79A	3,400 J	---	570	1.5	**330**	75	77	7.4	4.7	4.2	< 1.0	0.25	0.14 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41A	3,200	---	530	2.4	**310**	83	92	6.5	5.4	5.0	< 1.0	0.17	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002*	EM41B	3,400	---	530	2.1	**310**	88	99	6.4	5.2	5.2	< 1.0	0.17	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47A/J	2,900 J	---	490 J	0.58 J	**260**	79	63	7.2	5.4	6.1	< 0.010	0.20	0.15	0.030	0.030	0.040	< 0.010	< 0.010	---
	Landau	6/25/2003*	FP47F/O	2,000 J	---	600 J	0.53 J	**280**	90	68	8.2	5.3	6.1	< 0.010	0.20	0.13	0.020	0.040	0.040	< 0.010	< 0.010	---
	Landau	6/9/2004	GS18F	1,800	---	280	2.0	**250**	72	66	6.5	5.0	4.6	< 0.050	0.23	0.16	0.048 J	0.048 J	0.052	< 0.050	< 0.050	---
	Landau	6/9/2004*	GS18G	1,800	---	290	2.3	**260**	79	75	7.6	5.6	5.3	< 0.050	0.25	0.17	0.048 J	0.071	0.060	< 0.050	< 0.050	---
	Landau	8/24/2009	PL72A	1,500	---	440	< 1.0	**240**	85	93	7.6	6.8	6.2	< 1.0	0.28 J	0.20 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	8/24/2009*	PL72E	1,400	---	400	< 1.0	220	76	86	7.1	6.0	5.3	< 1.0	0.43 J	0.33 J	< 0.10	< 0.10	0.14	< 0.10	< 0.10	---
	Landau	06/18/2014	YO69E	1,200	---	300	1.5	150	54	63	3.9	3.4	3.4	< 1.2	0.24	0.18	---	---	< 0.11	< 0.11	< 0.11	0.13
	Landau	8/21/2019	19H0324	1,770	412.0	551	< 1.0	**275**	95.9	99.8	8.1	6.2	8.3	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 102.0
	Landau	8/21/2019	19H0324^	---	---	---	---	---	---	---	---	---	---	---	0.22	0.16	---	---	< 0.10	< 0.10	< 0.10	< 0.20
	Farallon	10/7/2021	MW-101R-20211007	---	---	---	---	166	---	---	---	---	---	---	0.120	0.0871	< 0.0506	< 0.0506	< 0.0506	< 0.0506	< 0.0506	---
Site-Specific Cleanup Level for Groundwater[2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs										Carcinogenic PAHs							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
MW-102R	Landau	6/16/1999	AK50C	1.0	---	< 1.0	< 1.0	7.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02C	< 1.0	---	< 1.0	< 1.0	11	2.4	< 1.0	0.8 J	1.0	0.9 J	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999*	BD02B	< 1.0	---	< 1.0	< 1.0	11	2.1	< 1.0	0.7 J	1.0	1.1	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98D	3.7 J	---	< 1.0	< 1.0	11	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43B	9.3 J	---	1.8	< 1.0	13	2.7	3.2	1.0	1.0	< 1.0	< 1.0	0.06 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000*	BT43E	2.8 J	---	< 1.0	< 1.0	11	2.6	3.2	< 1.0	< 1.0	< 1.0	< 1.0	0.05 J	0.03 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72A	3.3 J	---	1.0 J	< 1.0	11 J	2.8	4.2	< 1.0	< 1.0	< 1.0 J	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44E	< 1.0	---	3.5	< 1.0	14	3.2	0.6 J	1.0 J	0.9 J	1.0 J	< 1.0	0.07 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000*	CP44I	< 1.0	---	3.2	< 1.0	12	3.2	1.4	0.8 J	0.9 J	0.8 J	< 1.0	0.06 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96B	1.7	---	< 1.0	< 1.0	13	2.9	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/22/2001	DH51B	< 1.0	---	< 1.0	< 1.0	12 J	3.2	4.3	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61B	8.4 J	---	1.8	< 1.0	11	2.9	4.3	< 1.0	1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001*	DQ61I	1.0 J	---	< 1.0	< 1.0	12	3.0	4.3	1.1	1.1	1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69D	12 J	---	2.1	< 1.0	15 J	3.4	3.3	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79B	22 J	---	2.6	< 1.0	17	3.7	3.8	1.1	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41C	1.5	---	< 1.0	< 1.0	13	2.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47B/K	< 0.06 J	---	0.12 J	0.16 J	11	2.9	2.7	0.84 J	0.48 J	0.40 J	< 0.010 J	0.030 J	0.020 J	< 0.010 J	< 0.010 J	< 0.010 J	< 0.010 J	< 0.010 J	---
	Landau	6/9/2004	GS18E	< 0.24	---	0.67	0.28	13	3.2	3.8	0.98	1.0	0.85	0.059	0.12	0.098	0.064	0.068	0.064	0.069	0.074	---
	Landau	8/24/2009	PL72B	3.1	---	< 1.0	< 1.0	11	2.8	3.5	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	06/18/2014	YO69D	2.4	---	< 1.2	< 1.2	7.6	1.8	1.6	< 1.2	< 1.2	< 1.2	< 1.2	< 0.12	< 0.12	---	---	< 0.12	< 0.12	< 0.12	< 0.12
	Landau	8/21/2019	19H0324	< 1.0	< 1.0	< 1.0	< 1.0	10.6	2.1	3.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.0
	Landau	8/21/2019	19H0324^	---	---	---	---	---	---	---	---	---	---	---	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.20
Site-Specific Cleanup Level for Groundwater [2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs											Carcinogenic PAHs							
				Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)perylene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Total Benzofluoranthenes
MW-104	Landau	6/16/1999	AK50E	< 1.0	---	< 1.0	< 1.0	58	11	4.5	1.2	1.4	1.2	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02E	< 1.0	---	< 1.0	2.0	37	13	7.9	1.6	1.8	1.7	< 1.0	0.10	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98B	1.1 J	---	< 1.0	< 1.0	37	10	5.7	1.3	1.4	1.2	< 1.0	0.11	0.09 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43D	< 1.0	---	< 1.0	< 1.0	43 J	9.6	< 1.0	1.3	1.9	1.5	< 1.0	0.12	0.09 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72C	< 1.0	---	< 1.0	< 1.0	47 J	12	5.0	1.5	1.5	1.2 J	< 1.0	0.10	0.09 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44F	< 1.0	---	24	< 1.0	62	17	8.7	1.7	1.9	1.6	< 1.0	0.14 J	0.12 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96C	< 1.0	---	< 1.0	1.1	40	11	3.1	1.2	1.6	1.2	< 1.0	0.11	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/22/2001	DH51C	< 1.0	---	< 1.0	< 1.0	43 J	11	< 1.0	1.3	1.5	1.1	< 1.0	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61C	< 1.0 J	---	4.9	1.4	46	10	1.6	1.0	1.5	1.1	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69E	< 1.0	---	< 1.0	< 1.0	64 J	11	< 1.0	1.1	1.7	1.4	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79C	< 1.0 J	---	2.0	< 1.0	50	10	1.2	1.2	1.4	1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41D	< 1.0	---	< 1.0	2.3	50	6.8	< 1.0	< 1.0	1.4	1.1	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47C/L	0.40	---	9.3	0.47	48	8.5	< 0.010	0.77	1.4	1.3	< 0.010	0.090	0.060	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	---
	Landau	6/9/2004	GS18B	< 0.75	---	1.5	0.70	45	4.0	0.36	< 0.01	1.4	1.1	< 0.010	0.070	0.047	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	---
	Landau	8/24/2009	PL72D	4.5	---	7.8	< 1.0	55	15	15	1.7	1.8	1.3	< 1.0	0.14	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	06/18/2014	YO69B	1.9	---	11	< 1.2	54	15	12	2.1	1.6	1.6	< 1.2	0.18	0.23	---	---	0.14	< 0.12	< 0.12	0.24
	Landau	8/21/2019	19H0324	< 1.0	10.2	1.9	12.4	45.1	10.4	2.8	1.0	1.4	1.6	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.0
	Landau	8/21/2019	19H0324^	---	---	---	---	---	---	---	---	---	---	---	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.20
Site-Specific Cleanup Level for Groundwater [2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs										Carcinogenic PAHs							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
MW-105	Landau	6/16/1999	AK50I	1,700	---	70	13	72	38	72	7.1	7.1	6.1	< 1.0	0.28	0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02F	1,300	---	190	7.6	80	39	67	8.2	9.1	9.5	< 1.0	0.32	0.23	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98C	860 J	---	75 J	2.8 J	70 J	27 J	61 J	5.1 J	5.7 J	4.3 J	< 1.0	0.30	0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43F	1,500 J	---	120	2.7	75	31	72	9.5	8.7	7.6	< 1.0	0.49	0.32	0.04 J	0.05 J	0.05 J	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72I	820 J	---	90 J	2.9	73 J	31	66	7.6	6.9	5.8 J	< 1.0	0.38	0.31	0.08 J	0.12	0.14	0.05 J	< 0.10	---
	Landau	9/27/2000*	CF72D	1,200 J	---	120 J	3.1	100 J	32	66	8.0	7.7	5.8 J	< 1.0	0.34	0.21	0.03 J	0.06 J	0.06 J	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44C	1,000	---	100	2.3	100	42	57	7.4	9.2	9.6	< 1.0	0.33	0.25 J	0.03 J	0.04 J	0.02 J	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96D	1,000	---	130	1.6	67	32	58	8.1	11	9.6	< 1.0	0.76	0.69	0.23	0.35	0.36	0.15	< 0.10	---
	Landau	6/22/2001	DH51G	770	---	110	1.2	70	32	59	7.0	9.5	8.1	< 1.0	0.52	0.35	0.12	0.13	0.15	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61D	610 J	---	89	1.7	67	29	60	6.4	8.1	6.6	< 1.0	0.41	0.27	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69F	860 J	---	74	1.2	80 J	35	73	9.6	11	9.8	< 1.0	0.77 J	0.56 J	0.20 J	0.32 J	0.4 J	0.19 J	< 0.10 J	---
	Landau	3/20/2002	EE79D	940 J	---	96	< 1.0	79	30	65	8.1	11	8.2	< 1.0	0.85	0.66 J	0.17	0.36	0.41	0.15	< 0.10	---
	Landau	6/19/2002	EM41E	410	---	76	1.1	75	32	57	5.8	7.4	6.8	< 1.0	0.24	0.16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47D/M	480 J	---	71	0.29 J	54	24	40	5.6	5.9	6.1	< 0.010	0.24	0.15	0.030	0.040	0.040	< 0.010	< 0.010	---
	Landau	6/9/2004	GS18D	540	---	62	0.98	48	20	34	4.8	6.5	5.7	0.062	0.46	0.28	0.10	0.12	0.14	0.068	0.053	---
	Landau	8/25/2009	PL85D	240	---	29	< 1.0	50	19	30	4.3	6.0	4.8	< 1.0	**1.2**	**1.1**	0.55	0.74	1.0	0.48	0.17	---
	Landau	06/18/2014	YO69C	180	---	19	< 1.2	33	12	23	3.1	4.7	4.6	< 1.2	0.35	0.28	---	---	0.19	< 0.12	< 0.12	0.29
	Landau	8/21/2019	19H0324	269	30.6	26.8	< 1.0	39.5	15.3	31	3.5	6.1	7.3	< 1.0	**1.1**	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.1
	Landau	8/21/2019	19H0324^	---	---	---	---	---	---	---	---	---	---	---	0.27	0.24	---	---	0.12	< 0.10	< 0.10	< 0.21
	Farallon	10/7/2021	MW-105-20211007	---	---	---	---	---	---	---	---	---	---	---	0.124	0.0888	< 0.0426	< 0.0426	< 0.0426	< 0.0426	< 0.0426	---
Site-Specific Cleanup Level for Groundwater[2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
MW-107R	Landau	6/16/1999	AK50F	2.1	---	6.8	< 1.0	5.9	1.5	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02G	390	---	44	< 1.0	18	4.8	3.2	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98A	600 J	---	39	< 1.0	14 J	3.2	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43G	2,000 J	---	130	< 1.0	47	12	9.1	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72J	900 J	---	78 J	< 1.0	36 J	9.2	6.7	< 1.0	< 1.0	< 1.0 J	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44D	740	---	63	< 1.0	33	8.9	5.9	< 1.0	< 1.0	< 1.0	< 1.0	0.04 J	0.03 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96E	2,200	---	170	< 1.0	53	16	12	1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001*	CV96G	1,900	---	150	< 1.0	53	17	12	1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/22/2001	DH51H	1,300	---	130	< 1.0	47	14	9.8	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61E	1,400 J	---	150	< 1.0	56	15	12	1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69G	990 J	---	66	< 1.0	38 J	10	7.6	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79E	2,200 J	---	150	< 1.0	63	17	14	1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41F	1,000	---	77	< 1.0	43	13	8.8	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47E/N	1,400 J	---	220	0.3 J	76	27	18	1.4	0.49	0.44	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	---
	Landau	6/9/2004	GS18C	1,200	---	140	0.47	58	19	14	1.0	0.47	0.49	< 0.050	0.053	0.051	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---
	Landau	8/25/2009	PL85C	480	---	100	< 1.0	44	12	8.7	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	06/19/2014	YO99C	160	---	57	< 3.4	29	8.5	8.4	< 3.4	< 3.4	< 3.4	< 3.4	< 0.12	< 0.12	---	---	< 0.12	< 0.12	< 0.12	< 0.12
	Landau	8/20/2019	19H0298	2.8 J	18.4 J	19.1 J	< 1	18.6 J	5.7 J	5.4 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.0
	Landau	8/20/2019*	19H0298	4.8 J	23.5 J	26.0 J	< 1.0	24.1 J	7.5 J	6.8 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.1
	Landau	8/20/2019	19H0298^	---	---	---	---	---	---	---	---	---	---	---	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.20
	Landau	8/20/2019*	19H0298^	---	---	---	---	---	---	---	---	---	---	---	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.20
Site-Specific Cleanup Level for Groundwater[2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

Table 4
Groundwater Analytical Results for PAHs
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

				Analytical Results (micrograms per liter)[1]																	
				Non-Carcinogenic PAHs											**Carcinogenic PAHs**							
Sample Location	**Sampled By**	**Sample Date**	**Sample Identification**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**	**Benzo(g,h,i)perylene**	**Benzo(a)anthracene**	**Chrysene**	**Benzo(b)fluoranthene**	**Benzo(k)fluoranthene**	**Benzo(a)pyrene**	**Indeno(1,2,3-cd)pyrene**	**Dibenzo(a,h)anthracene**	**Total Benzofluoranthenes**
MW-108R	Landau	6/16/1999	AK50G	67	---	11	< 1.0	5.8	1.6	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/16/1999	BD02K	50	---	10	< 1.0	5.7	1.9	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/22/2000	BK98F	20 J	---	4.5	< 1.0	2.3	< 1.0	2.0	< 1.0	< 1.0	< 1.0	< 1.0	0.05 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/14/2000	BT43H	50 J	---	7.7	< 1.0	4.1	1.3	2.0	< 1.0	< 1.0	< 1.0	< 1.0	0.05 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/27/2000	CF72E	100 J	---	14 J	< 1.0	7.7 J	1.8	2.6	< 1.0	< 1.0	< 1.0 J	< 1.0	0.08 J	0.06 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/20/2000	CP44G	53	---	9.4	< 1.0	6.8	2.1	2.3	< 1.0	< 1.0	< 1.0	< 1.0	0.06 J	0.04 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/14/2001	CV96F	19	---	4.0	< 1.0	2.5	1.1	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/22/2001	DH51A	30	---	5.4	< 1.0	3.8 J	1.1	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	9/26/2001	DQ61F	22 J	---	3.9	< 1.0	2.6	1.0	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001	DY69H	31 J	---	4.7	< 1.0	3.0 J	1.1	2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	12/19/2001*	DY69I	20 J	---	3.7	< 1.0	2.3 J	< 1.0	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	3/20/2002	EE79F	27 J	---	5.0	< 1.0	3.0	1.0	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/19/2002	EM41G	49	---	7.9	< 1.0	4.6	1.4	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	6/25/2003	FP47I/R	33 J	---	6.2	0.040	3.3	1.1	1.5	0.22	0.16	0.21	< 0.010	0.030	0.020	< 0.01	< 0.010	< 0.010	< 0.010	< 0.010	---
	Landau	6/9/2004	GS18H	11	---	2.8	< 0.05	2.1	1.0	1.9	0.29	0.28	0.30	0.058	0.10	0.099	0.055	0.074	0.066	0.070	0.070	---
	Landau	8/24/2009	PL72C	12	---	1.6	< 1.0	2.1	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---
	Landau	06/19/2014	YO99B	1.4	---	< 1.1	< 1.1	1.3	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 0.12	< 0.12	---	---	< 0.12	< 0.12	< 0.12	< 0.12
	Landau	06/19/2014*	YO99A	1.7	---	< 1.2	< 1.2	1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 0.11	< 0.11	---	---	< 0.11	< 0.11	< 0.11	< 0.11
	Landau	8/21/2019	19H0324	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 2.1
	Landau	8/21/2019	19H0324^	---	---	---	---	---	---	---	---	---	---	---	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.21
Site-Specific Cleanup Level for Groundwater [2]				**9,880**	**NE**	**NE**	**NE**	**225**	**2,422**	**NE**	**25,900**	**27.1**	**777**	**NE**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**NE**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.
< denotes analyte not detected at or exceeding the reporting limit listed.
--- denotes sample not analyzed.
* denotes sample is a field duplicate.
^ denotes sample analyzed by 8270D SIM

[1]Analyzed by U.S. Environmental Protection Agency Method 8270D unless otherwise noted.
[2]Site-specific groundwater cleanup levels from Table 1 of the Cleanup Action Plan for Union Station Property prepared by Landau Associates, Inc., July 28, 1997.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons
Farallon = Farallon Consulting, L.L.C.
J = result is an estimate
Landau = Landau Associates, Inc.
PAHs = polycyclic aromatic hydrocarbons
NE = not established

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
B-4	Landau	6/16/1999	AK50J	---	2
	Landau	12/16/1999	BD02I	---	< 5
	Landau	3/22/2000	BK98J	---	3
	Landau	6/14/2000	BT43J	---	3
	Landau	9/27/2000	CF72G	---	3
	Landau	12/20/2000	CP44A	---	3
	Landau	3/14/2001	CV96H	---	2
	Landau	6/22/2001	DH51I	---	3
	Landau	9/26/2001	DQ61G	---	3
	Landau	12/19/2001	DY69A	---	3 J
	Landau	3/20/2002	EE79H	---	3
	Landau	6/19/2002	EM41H	---	3.2
	Landau	6/25/2003	FP47G/P	---	**7**
	Landau	6/9/2004	GS18I	---	4
B-4R	Landau	8/25/2009	PL85B	---	**13.4**
	Landau	06/19/2014	YO99D	---	**13**
	Landau	8/20/2019	19H0298	---	**13.7**
	Farallon	10/7/2021	B-4R-20211007	2.37	1.52
B-6	Landau	6/16/1999	AK50H	---	**13**
B-6R	Landau	12/16/1999	BD02H	---	**6**
	Landau	3/22/2000	BK98H	---	**20**
	Landau	3/22/2000*	BK98I	---	**20**
	Landau	6/14/2000	BT43I	---	**17**
	Landau	9/27/2000	CF72F	---	**35**
	Landau	12/20/2000	CP44H	---	**21**
	Landau	3/14/2001	CV96I	---	**27**
	Landau	6/22/2001	DH51D	---	**33**
	Landau	9/26/2001	DQ61H	---	**31**
	Landau	12/19/2001	DY69B	---	**22** J
	Landau	3/20/2002	EE79I	---	**27** J
	Landau	3/20/2002*	EE79G	---	**38** J
	Landau	6/19/2002	EM41I	---	**25**
	Landau	6/25/2003	FP47H/Q	---	**24**
	Landau	6/9/2004	GS18J	---	**30**
	Landau	8/25/2009	PL85A	---	**31**
	Landau	06/19/2014	YO99E	---	**26**
	Landau	8/20/2019	19H0298	---	**30.4**
	Farallon	10/7/2021	B-6R-20211007	**36.0**	**31.8**
Site-Specific Cleanup Level for Groundwater[2]				**4**	

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
MW-101R	Landau	6/16/1999	AK50A	---	**13**
	Landau	6/16/1999*	AK50B	---	**12**
	Landau	12/16/1999	BD02A	---	**14**
	Landau	3/22/2000	BK98G	---	**12**
	Landau	6/14/2000	BT43A	---	**12**
	Landau	9/27/2000	CF72H	---	**13**
	Landau	12/20/2000	CP44B	---	**13**
	Landau	3/14/2001	CV96A	---	**12**
	Landau	6/22/2001	DH51F	---	**12**
	Landau	6/22/2001*	DH51E	---	**12**
	Landau	9/26/2001	DQ61A	---	**14**
	Landau	12/19/2001	DY69C	---	**10** J
	Landau	3/20/2002	EE79A	---	**11**
	Landau	6/19/2002	EM41A	---	**10**
	Landau	6/19/2002*	EM41B	---	**11**
	Landau	6/25/2003	FP47A/J	---	**11**
	Landau	6/25/2003*	FP47F/O	---	**11**
	Landau	6/9/2004	GS18F	---	**12**
	Landau	6/9/2004*	GS18G	---	**12**
	Landau	8/24/2009	PL72A	---	**9.1**
	Landau	8/24/2009*	PL72E	---	**9.5**
	Landau	06/18/2014	YO69E	---	**11**
	Landau	8/21/2019	19H0324	---	**11.0**
	Farallon	10/7/2021	MW-101R-20211007	**9.10**	**8.37**
Site-Specific Cleanup Level for Groundwater[2]				**4**	

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
MW-102R	Landau	6/16/1999	AK50C	---	4
	Landau	12/16/1999	BD02C	---	**5**
	Landau	12/16/1999*	BD02B	---	**6**
	Landau	3/22/2000	BK98D	---	**7**
	Landau	6/14/2000	BT43B	---	**8**
	Landau	6/14/2000*	BT43E	---	**7**
	Landau	9/27/2000	CF72A	---	**10**
	Landau	12/20/2000	CP44E	---	**9**
	Landau	12/20/2000*	CP44I	---	**10**
	Landau	3/14/2001	CV96B	---	**6**
	Landau	6/22/2001	DH51B	---	**7**
	Landau	9/26/2001	DQ61B	---	**11**
	Landau	9/26/2001*	DQ61I	---	**11**
	Landau	12/19/2001	DY69D	---	3 J
	Landau	3/20/2002	EE79B	---	**5**
	Landau	6/19/2002	EM41C	---	4
	Landau	6/25/2003	FP47B/K	---	< 2
	Landau	6/9/2004	GS18E	---	**6**
	Landau	8/24/2009	PL72B	---	**6.8**
	Landau	06/18/2014	YO69D	---	**5**
	Landau	8/21/2019	19H0324	---	**6.52**
	Farallon	10/7/2021	MW-102R-20211007	**4.59**	3.02
Site-Specific Cleanup Level for Groundwater[2]				**4**	

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
MW-104	Landau	6/16/1999	AK50E	---	< 1
	Landau	12/16/1999	BD02E	---	1
	Landau	3/22/2000	BK98B	---	< 1
	Landau	6/14/2000	BT43D	---	< 1
	Landau	9/27/2000	CF72C	---	1
	Landau	12/20/2000	CP44F	---	< 1
	Landau	3/14/2001	CV96C	---	1
	Landau	6/22/2001	DH51C	---	1
	Landau	9/26/2001	DQ61C	---	1
	Landau	12/19/2001	DY69E	---	1 J
	Landau	3/20/2002	EE79C	---	1
	Landau	6/19/2002	EM41D	---	1.0
	Landau	6/25/2003	FP47C/L	---	1
	Landau	6/9/2004	GS18B	---	2
	Landau	8/24/2009	PL72D	---	**7.0**
	Landau	06/18/2014	YO69B	---	1.5
	Landau	8/21/2019	19H0324	---	0.842
MW-105	Landau	6/16/1999	AK50I	---	**6**
	Landau	12/16/1999	BD02F	---	**14**
	Landau	3/22/2000	BK98C	---	**10**
	Landau	6/14/2000	BT43F	---	**14**
	Landau	9/27/2000	CF72I	---	**7**
	Landau	9/27/2000*	CF72D	---	**6**
	Landau	12/20/2000	CP44C	---	**18**
	Landau	3/14/2001	CV96D	---	**14**
	Landau	6/22/2001	DH51G	---	**14**
	Landau	9/26/2001	DQ61D	---	**14**
	Landau	12/19/2001	DY69F	---	**18** J
	Landau	3/20/2002	EE79D	---	**19**
	Landau	6/19/2002	EM41E	---	**12**
	Landau	6/25/2003	FP47D/M	---	**12**
	Landau	6/9/2004	GS18D	---	**17**
	Landau	8/25/2009	PL85D	---	1.4
	Landau	06/18/2014	YO69C	---	**15**
	Landau	8/21/2019	19H0324	---	**8.19**
	Farallon	10/7/2021	MW-105-20211007	**13.3**	**12.6**
Site-Specific Cleanup Level for Groundwater[2]				**4**	

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
MW-107R	Landau	6/16/1999	AK50F	---	**8**
	Landau	12/16/1999	BD02G	---	**6**
	Landau	3/22/2000	BK98A	---	**6**
	Landau	6/14/2000	BT43G	---	**6**
	Landau	9/27/2000	CF72J	---	**5**
	Landau	12/20/2000	CP44D	---	**6**
	Landau	3/14/2001	CV96E	---	**7**
	Landau	3/14/2001*	CV96G	---	**8**
	Landau	6/22/2001	DH51H	---	**8**
	Landau	9/26/2001	DQ61E	---	**8**
	Landau	12/19/2001	DY69G	---	**7** J
	Landau	3/20/2002	EE79E	---	**7**
	Landau	6/19/2002	EM41F	---	**5**
	Landau	6/25/2003	FP47E/N	---	3
	Landau	6/9/2004	GS18C	---	**8**
	Landau	8/25/2009	PL85C	---	**4.4**
	Landau	06/19/2014	YO99C	---	4
	Landau	8/20/2019	19H0298	---	**4.95**
	Landau	8/20/2019*	19H0298	---	**4.88**
	Farallon	10/7/2021	MW-107R-20211007	**6.58**	**5.96**
Site-Specific Cleanup Level for Groundwater[2]				**4**	

Table 5
Groundwater Analytical Results for Dissolved Arsenic
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]	
				Total Arsenic	Dissolved Arsenic
MW-108R	Landau	6/16/1999	AK50G	---	**10**
	Landau	12/16/1999	BD02K	---	4
	Landau	3/22/2000	BK98F	---	< 8
	Landau	6/14/2000	BT43H	---	**5**
	Landau	9/27/2000	CF72E	---	< 2
	Landau	12/20/2000	CP44G	---	**15**
	Landau	3/14/2001	CV96F	---	4
	Landau	6/22/2001	DH51A	---	**6**
	Landau	9/26/2001	DQ61F	---	4
	Landau	12/19/2001	DY69H	---	**9** J
	Landau	12/19/2001*	DY69I	---	**14** J
	Landau	3/20/2002	EE79F	---	**6**
	Landau	6/19/2002	EM41G	---	**5**
	Landau	6/25/2003	FP47I/R	---	< 2
	Landau	6/9/2004	GS18H	---	< 5
	Landau	8/24/2009	PL72C	---	< 2
	Landau	06/19/2014	YO99B	---	**7**
	Landau	06/19/2014*	YO99A	---	**7**
	Landau	8/21/2019	19H0324	---	< 1.00
Site-Specific Cleanup Level for Groundwater[2]				**4**	

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.
< denotes analyte not detected at or exceeding the reporting limit listed.
* denotes sample is a field duplicate.

Farallon = Farallon Consulting, L.L.C.
J = result is an estimate
Landau = Landau Associates, Inc.

[1]Analyzed by U.S. Environmental Protection Agency Method 200.8/6010 series.

[2]Site-specific groundwater cleanup levels from Table 1 of the Cleanup Action Plan for Union Station Property prepared by Landau Associates, Inc., July 28, 1997.

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
B-4	Landau	6/16/1999	AK50J	730,000	63,000	NM	NM	NM	---
	Landau	12/16/1999	BD02I	820,000	680,000	NM	NM	NM	---
	Landau	3/22/2000	BK98J	720,000	930,000	NM	NM	NM	---
	Landau	6/14/2000	BT43J	NM	NM	6.78	1,288	16.6	---
	Landau	9/27/2000	CF72G	670,000	620,000	7.04	1,340	17.1	---
	Landau	12/20/2000	CP44A	750,000	440,000	6.68	1,500	14.6	---
	Landau	3/14/2001	CV96H	820,000 J	1,800,000	NM	NM	NM	---
	Landau	6/22/2001	DH51I	810,000 J	1,000,000 J	NM	NM	NM	---
	Landau	9/26/2001	DQ61G	780,000 J	400,000	NM	NM	NM	---
	Landau	12/19/2001	DY69A	770,000	1,400,000 J	NM	NM	NM	---
	Landau	3/20/2002	EE79H	740,000	920,000	NM	NM	NM	---
	Landau	6/19/2002	EM41H	790,000	680,000	NM	NM	NM	---
	Landau	6/25/2003	FP47G/P	790,000	270,000	NM	NM	NM	---
	Landau	6/9/2004	GS18I	751,000	938,000	NM	NM	NM	---
B-4R	Landau	8/25/2009	PL85B	538,000	8,300,000	7.36	1,398	15.01	---
	Landau	06/19/2014	YO99D	498,000	4,130,000	6.68	763	15.48	---
	Landau	8/20/2019	19H0298	530,000	4,600,000	6.97	741	16.7	-31.0
	Farallon	10/7/2021	B-4R-20211007	---	---	6.70	1,271	17.1	-69.5

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
B-6	Landau	6/16/1999	AK50H	890,000	14,000	7.27	1,770	17.3	
B-6R	Landau	12/16/1999	BD02H	830,000	680,000	6.76	1,440	16.9	---
	Landau	3/22/2000	BK98H	900,000	460,000	6.99	1,700	15.9	---
	Landau	3/22/2000*	BK98I	900,000	460,000	6.99	1,660	15.9	---
	Landau	6/14/2000	BT43I	820,000 J	890,000	7.18	1,301	16.9	---
	Landau	9/27/2000	CF72F	1,000,000	1,600,000	6.59	1,685	17.7	---
	Landau	12/20/2000	CP44H	800,000	1,500,000	6.19	2,693	14.5	---
	Landau	3/14/2001	CV96I	1,100,000 J	2,400,000	7.90	2,720	15.1	---
	Landau	6/22/2001	DH51D	1,200,000 J	370,000 J	6.66	1,698	16.8	---
	Landau	9/26/2001	DQ61H	1,100,000 J	500,000	6.75	2,370	16.1	---
	Landau	12/19/2001	DY69B	780,000	1,400,000 J	NM	NM	NM	---
	Landau	3/20/2002	EE79I	780,000 J	360,000 J	6.65	1,340	15.0	---
	Landau	3/20/2002*	EE79G	1,100,000 J	790,000 J	6.90	1,733	14.1	---
	Landau	6/19/2002	EM41I	890,000	1,100,000	6.95	1,348	16.1	---
	Landau	6/25/2003	FP47H/Q	790,000	430,000	7.06	1,708	16.8	---
	Landau	6/9/2004	GS18J	923,000	940,000	6.89	1,570	16.6	---
	Landau	8/25/2009	PL85A	891,000	1,040,000	7.39	2,392	15.5	---
	Landau	06/19/2014	YO99E	518,000	927,000	6.87	995	16.4	---
	Landau	8/20/2019	19H0298	666,000	324,000	6.92	1,061	16.4	35.8
	Farallon	10/7/2021	B-6R-20211007	---	---	6.66	1,647	16.4	-82.0

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-101R	Landau	6/16/1999	AK50A	1,300,000	80,000	6.13	2,200	14.3	---
	Landau	6/16/1999*	AK50B	1,300,000	76,000	6.13	2,200	14.3	---
	Landau	12/16/1999	BD02A	1,400,000	120,000	5.75	2,490	14.3	---
	Landau	3/22/2000	BK98G	1,300,000	120,000	6.83	3,680	12.9	---
	Landau	6/14/2000	BT43A	1,100,000 J	79,000	6.93	1,650	13.4	---
	Landau	9/27/2000	CF72H	960,000	85,000	6.65	2,410	16.6	---
	Landau	12/20/2000	CP44B	1,100,000	74,000	6.49	2,580	13.9	---
	Landau	3/14/2001	CV96A	1,000,000 J	76,000	7.46	1,918	12.8	---
	Landau	6/22/2001	DH51F	1,000,000 J	76,000 J	6.83	2,535	14.8	---
	Landau	6/22/2001*	DH51E	1,100,000 J	98,000 J	6.81	2,908	14.9	---
	Landau	9/26/2001	DQ61A	1,000,000 J	79,000	7.25	2,310	16.4	---
	Landau	12/19/2001	DY69C	1,100,000	65,000 J	NM	NM	NM	---
	Landau	3/20/2002	EE79A	970,000	71,000	6.70	2,540	14.2	---
	Landau	6/19/2002	EM41A	1,000,000	72,000	6.92	1,860	12.8	---
	Landau	6/19/2002*	EM41B	1,000,000	72,000	6.98	2,418	13.6	---
	Landau	6/25/2003	FP47A/J	960,000	79,000	6.96	1,510	14.8	---
	Landau	6/25/2003*	FP47F/O	950,000	78,000	6.96	1,510	14.8	---
	Landau	6/9/2004	GS18F	1,250,000	284,000 J	6.67	2,012	15.3	---
	Landau	6/9/2004*	GS18G	1,390,000	90,100 J	6.67	2,012	15.3	---
	Landau	8/24/2009	PL72A	1,130,000	60,400	6.88	2,899	15.0	---
	Landau	8/24/2009*	PL72E	1,080,000	59,300	6.88	2,899	15.0	---
	Landau	06/18/2014	YO69E	1,610,000	357,000	8.15	2,405	14.3	---
	Landau	8/21/2019	19H0324	1,480,000	459,000	6.74	2,276	17.4	-43.3
	Farallon	10/7/2021	MW-101R-20211007	---	---	6.47	2,179	16.6	-240.1

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-102R	Landau	6/16/1999	AK50C	1,500,000	43,000	6.41	3,420	15.1	---
	Landau	12/16/1999	BD02C	1,700,000	57,000	5.85	2,990	15.1	---
	Landau	12/16/1999*	BD02B	1,600,000	58,000	5.85	2,990	15.2	---
	Landau	3/22/2000	BK98D	1,800,000	65,000	6.89	3,960	14.1	---
	Landau	6/14/2000	BT43B	1,900,000 J	60,000	7.11	3,010	14.8	---
	Landau	6/14/2000*	BT43E	1,900,000 J	62,000	7.11	3,010	14.8	---
	Landau	9/27/2000	CF72A	1,900,000	74,000	6.76	3,470	17.3	---
	Landau	12/20/2000	CP44E	1,800,000	56,000	6.02	3,750	15.1	---
	Landau	12/20/2000*	CP44I	1,700,000	54,000	6.02	3,740	15.1	---
	Landau	3/14/2001	CV96B	2,100,000 J	53,000	7.23	3,920	14.5	---
	Landau	6/22/2001	DH51B	2,100,000 J	67,000 J	6.60	3,875	16.0	---
	Landau	9/26/2001	DQ61B	2,100,000 J	72,000	6.53	3,750	16.2	---
	Landau	9/26/2001*	DQ61I	2,000,000 J	83,000	6.53	3,750	16.1	---
	Landau	12/19/2001	DY69D	1,900,000	61,000 J	6.47	3,740	15.1	---
	Landau	3/20/2002	EE79B	1,800,000	51,000	6.64	3,090	14.2	---
	Landau	6/19/2002	EM41C	1,900,000	41,000	6.70	3,753	15.0	---
	Landau	6/25/2003	FP47B/K	1,500,000	51,000	6.80	2,710	15.6	---
	Landau	6/9/2004	GS18E	1,590,000	40,600	6.65	2,415	15.9	---
	Landau	8/24/2009	PL72B	1,700,000	45,500	6.43	3,262	16.2	---
	Landau	06/18/2014	YO69D	1,530,000	53,400	8.33	2,391	15.3	---
	Landau	8/21/2019	19H0324	1,630,000	98,000	6.90	2,725	17.6	-51.3
	Farallon	10/7/2021	MW-102R-20211007	---	---	6.45	3,589	17.6	-42.2

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-104	Landau	6/16/1999	AK50E	600,000	16,000	6.98	1,070	16.7	---
	Landau	12/16/1999	BD02E	600,000	41,000	5.75	832	25.5	---
	Landau	3/22/2000	BK98B	560,000	16,000	7.23	1,020	14.1	---
	Landau	6/14/2000	BT43D	600,000 J	9,300	7.17	814	15.1	---
	Landau	9/27/2000	CF72C	510,000	18,000	6.94	8,635	16.8	---
	Landau	12/20/2000	CP44F	450,000	25,000	6.86	990	15.3	---
	Landau	3/14/2001	CV96C	570,000 J	12,000	7.59	1,170	13.1	---
	Landau	6/22/2001	DH51C	550,000 J	19,000 J	6.74	955	14.7	---
	Landau	9/26/2001	DQ61C	530,000 J	5,100	7.26	1,020	16.5	---
	Landau	12/19/2001	DY69E	550,000	11,000 J	6.82	1,270	13.2	---
	Landau	3/20/2002	EE79C	530,000	19,000	7.27	920	11.4	---
	Landau	6/19/2002	EM41D	530,000	4,900	7.32	1,088	14.6	---
	Landau	6/25/2003	FP47C/L	510,000	6,200	7.26	641	15.4	---
	Landau	6/9/2004	GS18B	500,000	7,900	6.86	930	15.2	---
	Landau	8/24/2009	PL72D	502,000	14,800	7.88	1,314	16.6	---
	Landau	06/18/2014	YO69B	455,000	4,630,000	8.13	724	15.9	---
	Landau	8/21/2019	19H0324	437,000	17,000	6.92	701	18.2	-89.4

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-105	Landau	6/16/1999	AK50I	2,400,000	65,000	5.95	4,850	17.7	---
	Landau	12/16/1999	BD02F	2,100,000	140,000	5.47	3,740	16.2	---
	Landau	3/22/2000	BK98C	2,800,000	73,000	6.97	6,480	16.0	---
	Landau	6/14/2000	BT43F	3,900,000 J	87,000	6.84	4,660	17.0	---
	Landau	9/27/2000	CF72I	3,400,000	80,000	6.62	6,043	18.4	---
	Landau	9/27/2000*	CF72D	3,400,000	78,000	6.62	6,043	18.4	---
	Landau	12/20/2000	CP44C	2,200,000	66,000	6.74	5,205	17.0	---
	Landau	3/14/2001	CV96D	3,400,000 J	83,000	7.26	7,310	15.8	---
	Landau	6/22/2001	DH51G	3,200,000 J	85,000 J	7.01	7,525	17.6	---
	Landau	9/26/2001	DQ61D	3,400,000 J	100,000	6.72	6,230	18.9	---
	Landau	12/19/2001	DY69F	2,700,000	110,000 J	6.73	5,850	16.6	---
	Landau	3/20/2002	EE79D	2,700,000	97,000	6.87	5,460	15.8	---
	Landau	6/19/2002	EM41E	3,300,000	88,000	6.94	6,830	17.0	---
	Landau	6/25/2003	FP47D/M	2,400,000	98,000	7.08	6,610	17.3	---
	Landau	6/9/2004	GS18D	3,510,000	44,900	7	5,262	17.2	---
	Landau	8/25/2009	PL85D	3,100,000	91,100	NM	NM	NM	---
	Landau	06/18/2014	YO69C	2,800,000	996,000	8.34	4,239	17.7	---
	Landau	8/21/2019	19H0324	3,860,000	46,000	7.06	6,446	18.3	-40.3
	Farallon	10/7/2021	MW-105-20211007	---	---	6.53	4,002	18.7	-217.5

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-107R	Landau	6/16/1999	AK50F	2,400,000	62,000	6.42	4,190	13.4	---
	Landau	12/16/1999	BD02G	2,000,000	84,000	6.02	5,070	13.5	---
	Landau	3/22/2000	BK98A	1,800,000	62,000	6.94	3,520	12.3	---
	Landau	6/14/2000	BT43G	2,000,000 J	54,000	7.22	1,840	13.1	---
	Landau	9/27/2000	CF72J	1,800,000	49,000	6.74	3,778	14.4	---
	Landau	12/20/2000	CP44D	1,700,000	59,000	6.29	3,423	13.2	---
	Landau	3/14/2001	CV96E	1,900,000 J	56,000	8.22	4,350	12.3	---
	Landau	3/14/2001*	CV96G	1,800,000 J	53,000	8.24	4,350	12.3	---
	Landau	6/22/2001	DH51H	1,900,000 J	65,000 J	6.84	3,550	13.6	---
	Landau	9/26/2001	DQ61E	1,300,000 J	63,000	7.31	2,900	14.6	---
	Landau	12/19/2001	DY69G	1,700,000	53,000 J	6.79	3,710	12.4	---
	Landau	3/20/2002	EE79E	1,500,000	46,000	6.85	2,780	11.9	---
	Landau	6/19/2002	EM41F	1,800,000	48,000	6.90	3,303	13.0	---
	Landau	6/25/2003	FP47E/N	1,500,000	53,000	6.94	2,630	14.0	---
	Landau	6/9/2004	GS18C	1,550,000	45,800	6.85	2,792	14.0	---
	Landau	8/25/2009	PL85C	1,250,000	38,400	7.36	3,107	13.1	---
	Landau	06/19/2014	YO99C	917,000	28,600	6.67	1,208	13.0	---
	Landau	8/20/2019	19H0298	900,000	32,000	6.73	1,222	13.7	-47.0
	Landau	8/20/2019*	19H0298	909,000	30,000	6.73	1,223	13.7	-50.4
	Farallon	10/7/2021	MW-107R-20211007	---	---	6.67	2,227	14.3	-113.4

Table 6
Groundwater Water Quality Parameters
Union Station Property
Seattle, Washington
Farallon PN: 2644-001

Sample Location	Measured By	Sample Date	Sample Identification	Total Dissolved Solids (µg/L)	Total Suspended Solids (µg/L)	pH	Specific Conductance (µS/cm)	Temperature (°C)	Oxidation-Reduction Potential (mV)
MW-108R	Landau	6/16/1999	AK50G	10,000,000	86,000	6.06	1,933	14.0	---
	Landau	12/16/1999	BD02K	10,000,000	110,000	5.19	1,830	14.1	---
	Landau	3/22/2000	BK98F	12,000,000	99,000	6.70	1,970	13.1	---
	Landau	6/14/2000	BT43H	10,000,000 J	89,000	6.59	1,710	14.0	---
	Landau	9/27/2000	CF72E	9,300,000	97,000	6.35	15,125	15.0	---
	Landau	12/20/2000	CP44G	9,800,000	84,000	6.67	19,350	14.5	---
	Landau	3/14/2001	CV96F	11,000,000 J	88,000	7.12	19,675	13.2	---
	Landau	6/22/2001	DH51A	11,000,000 J	130,000 J	6.72	18,925	15.0	---
	Landau	9/26/2001	DQ61F	11,000,000 J	99,000	7.39	18,800	16.2	---
	Landau	12/19/2001	DY69H	9,900,000	130,000 J	6.76	19,300	13.6	---
	Landau	12/19/2001*	DY69I	9,800,000	94,000 J	6.77	19,300	13.4	---
	Landau	3/20/2002	EE79F	10,000,000	87,000	6.72	1,800	13.1	---
	Landau	6/19/2002	EM41G	10,000,000	84,000	6.73	2,548	14.4	---
	Landau	6/25/2003	FP47I/R	11,000,000	86,000	6.71	21,100	15.2	---
	Landau	6/9/2004	GS18H	8,970,000	79,100	6.76	11,900	15.4	---
	Landau	8/24/2009	PL72C	9,040,000	60,100	6.45	16,760	15.5	---
	Landau	06/19/2014	YO99B	5,760,000	135,000	6.62	12,780	16.1	---
	Landau	06/19/2014*	YO99A	6,400,000	136,000	6.62	12,748	16.1	---
	Landau	8/21/2019	19H0324	9,340,000	167,000	7.06	14,461	17.5	-40.6

NOTES:

* denotes sample is a field duplicate.

Farallon = Farallon Consulting, L.L.C.
J = result is an estimate
Landau = Landau Associates, Inc.
mV = millivolts
NM = not measured
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter

ATTACHMENT A
SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING STUDY BY HART CROWSER

RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
Union Station Property
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

DocID 6071

Source: King County Technical Library

Index No. MR 8103 C. 2

Seattle

Site Address _____

Date Copied 6-15-01 By Meek

- ☒ **Title page with the following information:**
  - o *Company (Author) name*
  - o *Report date*
  - o *Project Name*
  - o *Company's job number*
  - o *Site address*
- ☒ Executive Summary / Introduction of the report
- ☒ Table of contents
- ☐ Project Location Map / Vicinity Map
- ☒ **Site / Exploration Plans, Boring Location Plans**
- ☒ Cross-sections / Subsurface profiles
- ☐ **Exploration Logs**
- ☐ Monitoring Well Logs
- ☐ Cone Penetrometer Logs
- ☐ Groundwater Elevation Tables / Data

- ☐ Includes data from Previous Reports
- ☐ No new data / data review
- ☐ Missing Data / Illegible Data
  Explanation _____

Comments: _____

Subsurface Exploration and Geotechnical Engineering Study

5th Avenue South Viaduct and Retaining Wall

Seattle, Washington

Prepared for

Upland Industries

February 6, 1986
J-1601-01

HART CROWSER & associates inc.
GEOTECHNICAL & HYDROGEOLOGIC CONSULTANTS
1910 Fairview Avenue East • Seattle WA 98102-3699 • (206) 324-9530

J-1606-01

CONTENTS

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J-1601-01

SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING STUDY
5TH AVENUE SOUTH VIADUCT AND RETAINING WALL
SEATTLE, WASHINGTON

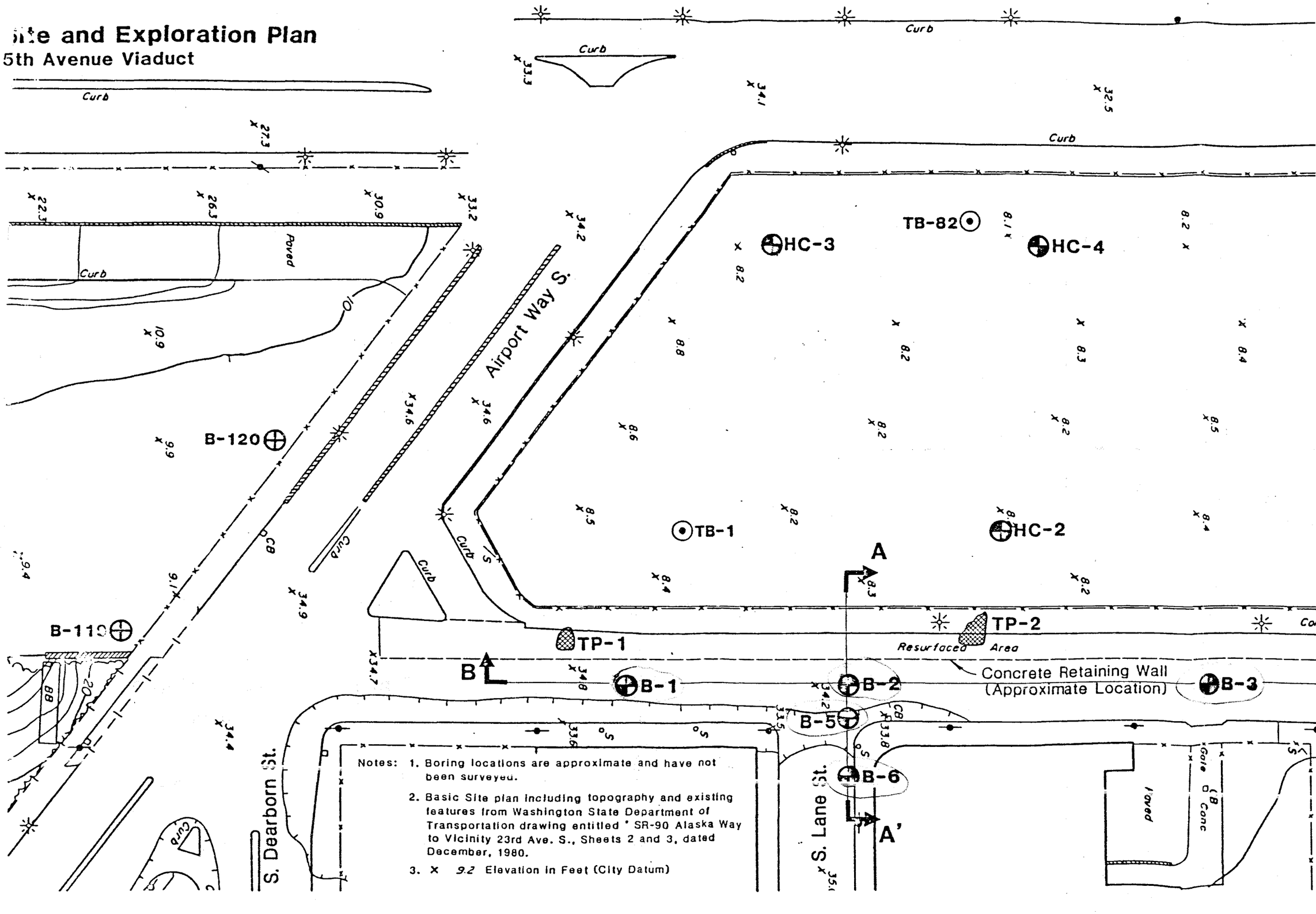
INTRODUCTION

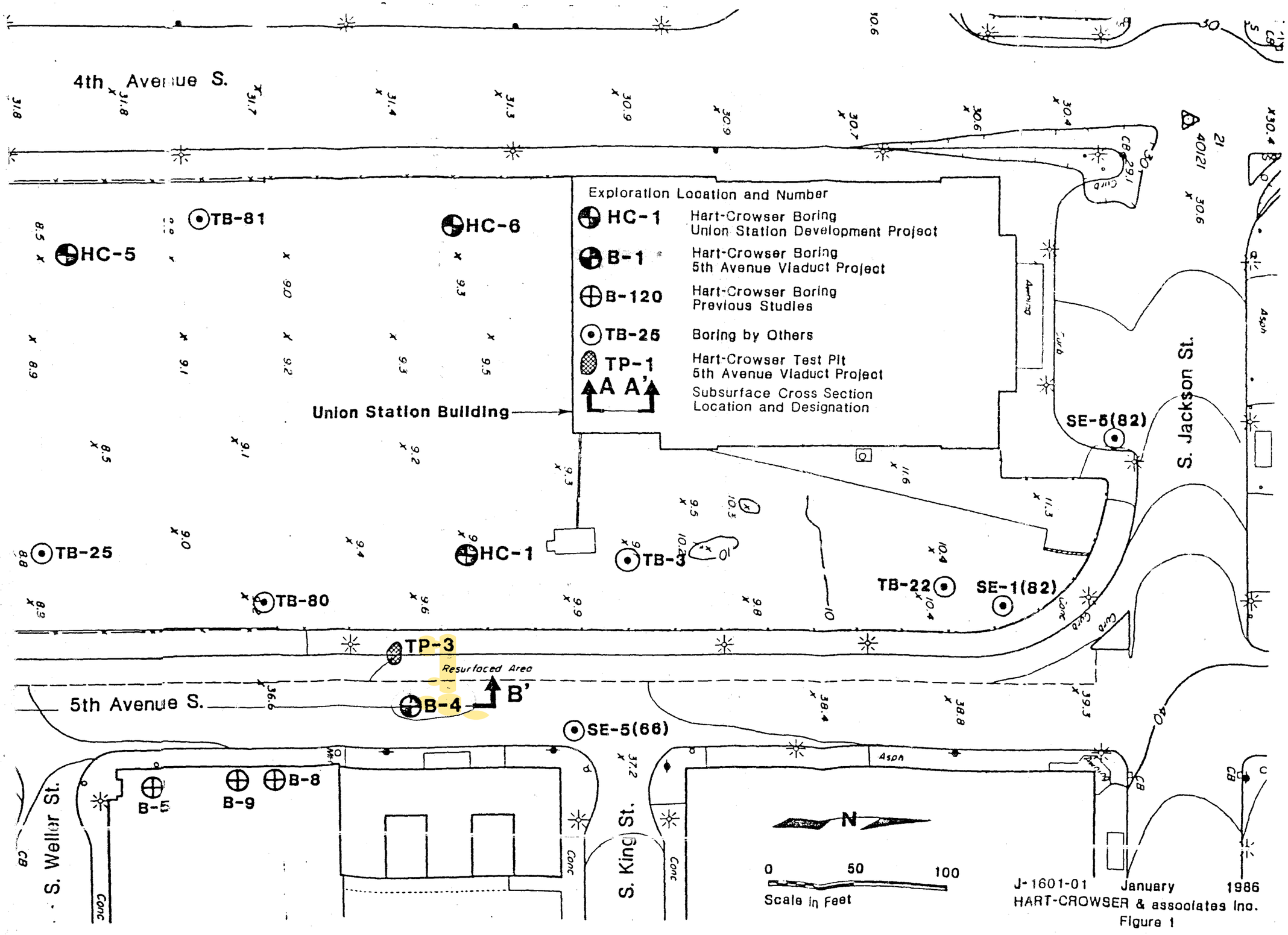
This report presents the results of our subsurface exploration program and geotechnical engineering study for the existing 5th Avenue South Viaduct and retaining wall. A site and exploration plan is presented in Figure 1.

The purpose of the study was to evaluate the existing condition of the retaining wall foundation underlying 5th Avenue South, determine soil and groundwater conditions below and behind the wall, and develop geotechnical conclusions and recommendations regarding the overall stability of the retaining wall. The scope of the work included excavating test pits and borings, installing a slope inclinometer, conducting laboratory tests, developing soil parameters, accomplishing stability analyses and formulating engineering design recommendations. Preliminary geotechnical data was obtained from the explorations and is presented in a separate report. A description of the exploration program along with logs of test pits and boring logs are presented in Appendix A. A summary of laboratory test results is presented in Appendix B. A historical survey of the area is contained in Appendix C. Selected photographs taken of the retaining wall foundation and test pits are presented in Appendix D.

This work has been accomplished in general accordance with the scope of work outlined in our proposals dated October 24 and December 11, 1985. This report has been prepared for the exclusive use of Upland Industries for specific application to this project in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

ite and Exploration Plan
5th Avenue Viaduct

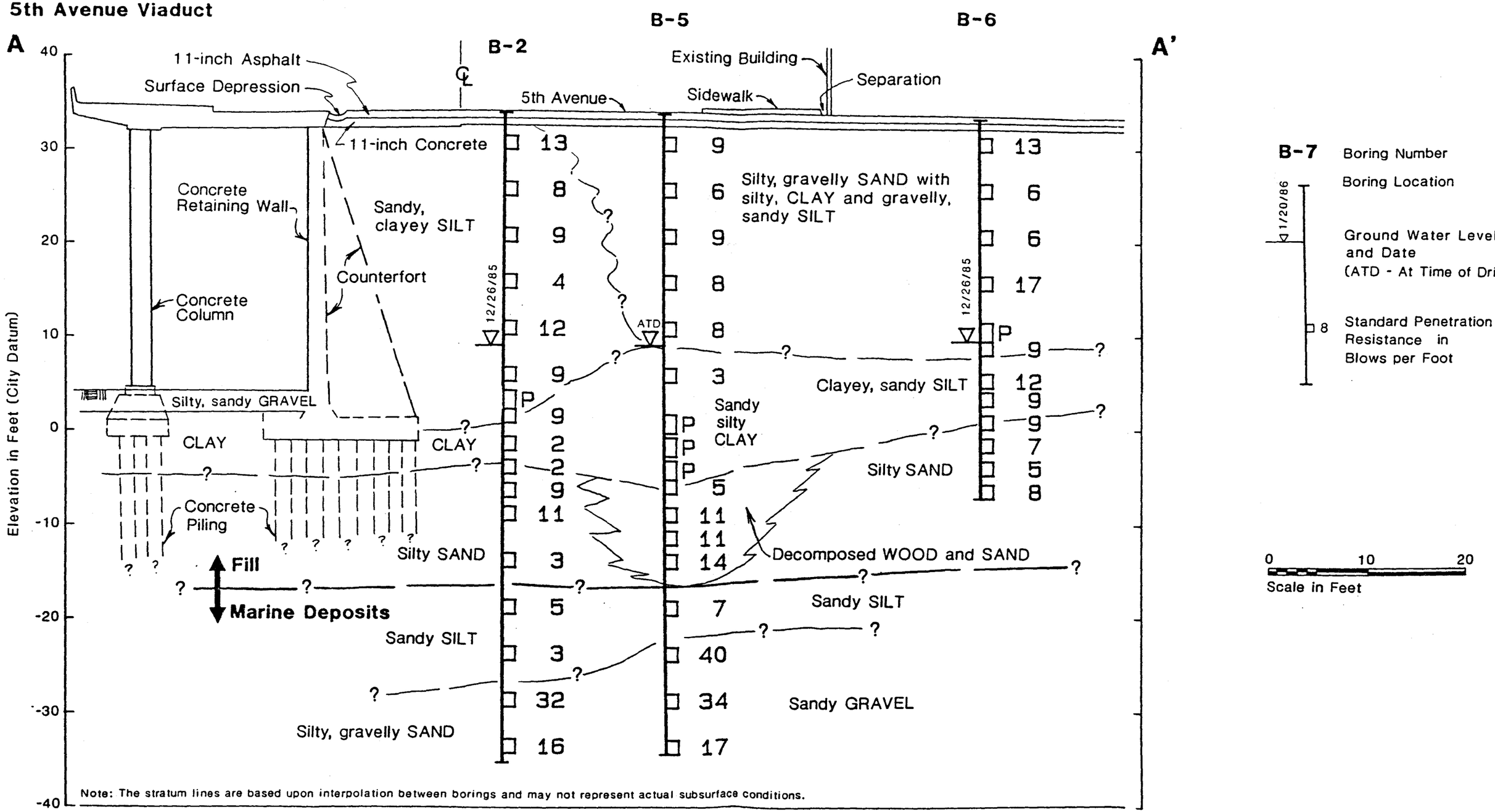




J-1601-01 January 1986
HART-CROWSER & associates Inc.
Figure 1

Generalized Subsurface Profile A-A'

5th Avenue Viaduct



Note: The stratum lines are based upon interpolation between borings and may not represent actual subsurface conditions.

B-7 Boring Number

1/20/86 Boring Location

Ground Water Level and Date (ATD - At Time of Dri

8 Standard Penetration Resistance in Blows per Foot

0 10 20

Scale in Feet

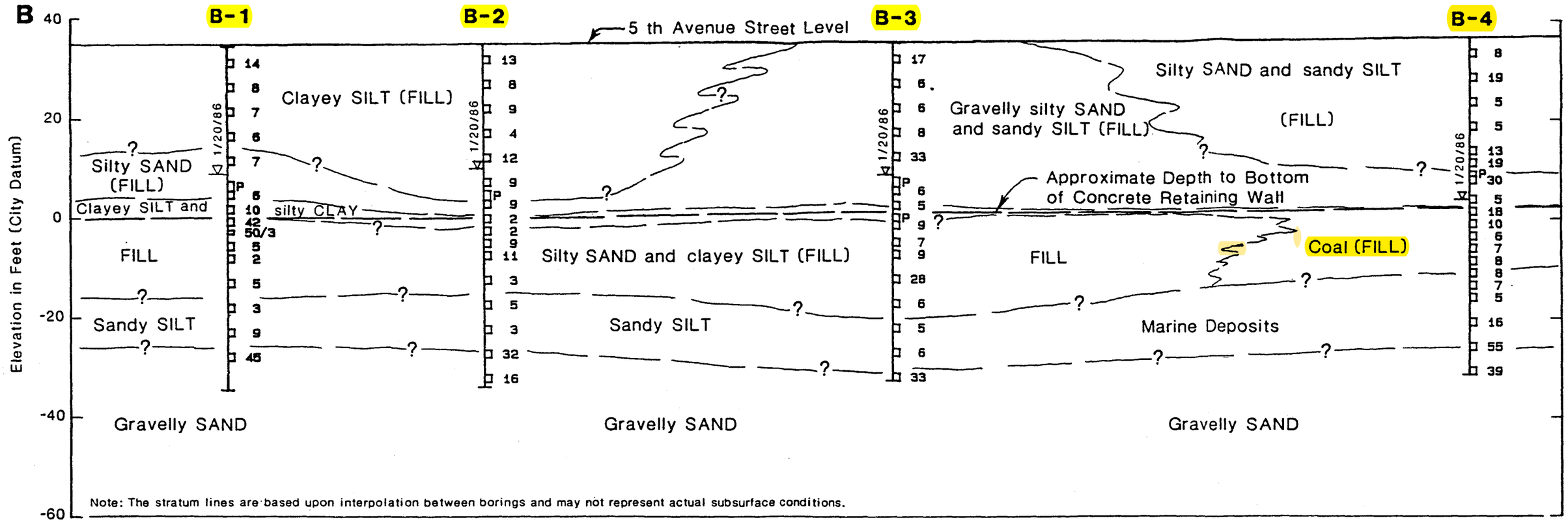
J-1601-01 January 198

HART-CROWSER & associates in

Figure 2

Generalized Subsurface Profile B-B'

5 th Avenue Viaduct



B-7 Boring Number

Boring Location

1/20/86 Ground Water Level and Date

Standard Penetration Resistance in Blows per Foot

Horizontal Scale in Feet
0 50 100
0 20 40
Vertical Scale in Feet
Vertical Exaggeration X 2.5

J-1601-01 January 19
HART-CROWSER & associates i
Figure 3

B-1

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 35 (City Datum)

Asphalt
Concrete

Medium stiff, wet, gray, slightly gravelly, slightly sandy, clayey SILT with scattered wood and brick fragments. (FILL)

Loose, wet, gray, slightly gravelly, silty, fine to medium SAND with scattered wood and brick fragments. (FILL)

Stiff, wet, gray, slightly sandy, silty CLAY. (FILL)

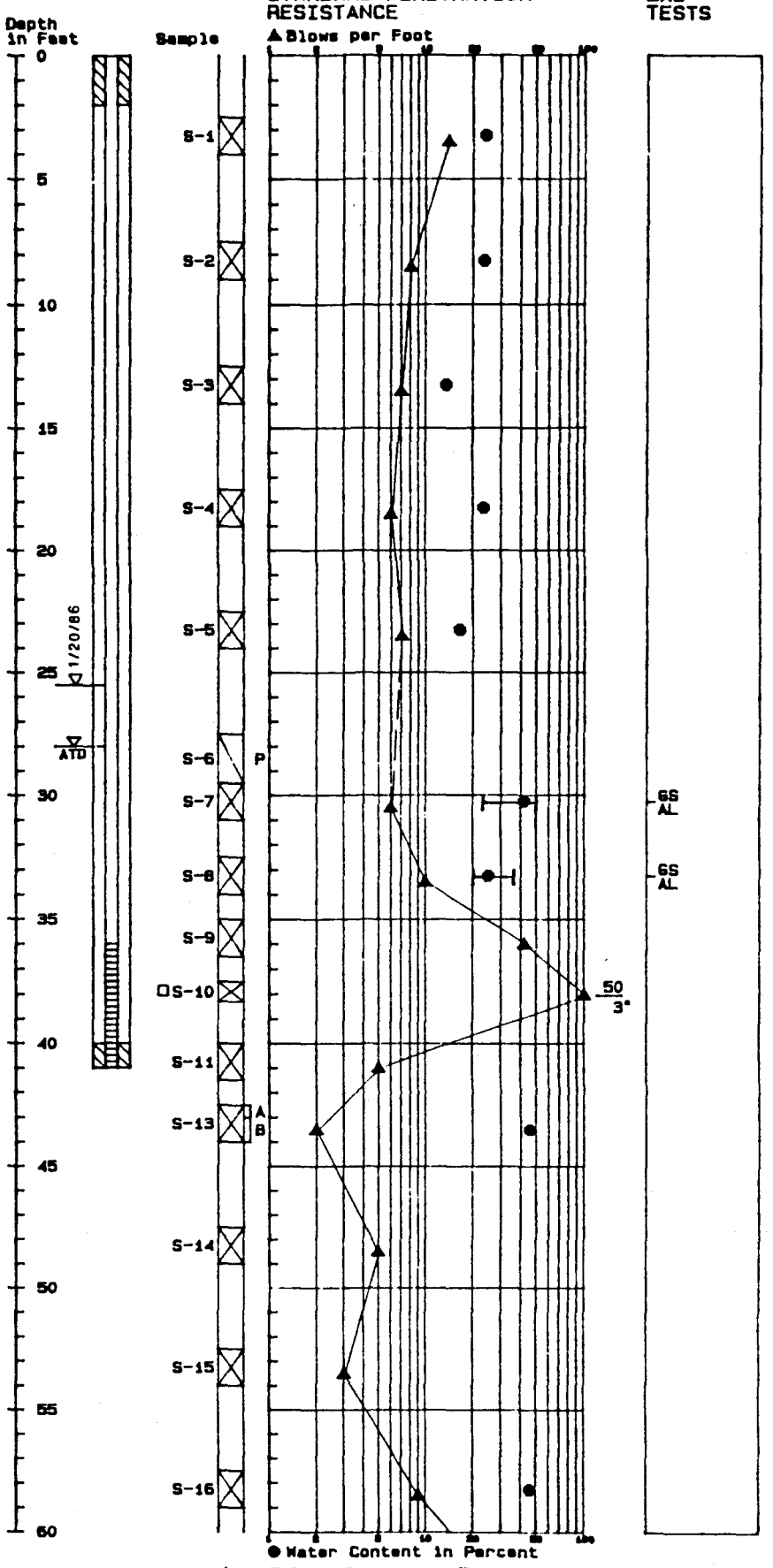
Chemical odor noted during drilling between 34 to 44 feet.

Dense to very loose, wet, black, slightly silty, gravelly SAND with possible coal and petroleum-based contaminants. (FILL)

Very soft, wet, gray, slightly sandy, clayey SILT. (FILL)

Loose, wet, black, silty, gravelly SAND with wood, brick and shell fragments. (FILL)

Soft to stiff, wet, gray, slightly sandy, clayey SILT with shell fragments.



J-1601-01 December 1985

HART-CROWSER & associates, inc.

Sheet 1 of 2 Figure A-2

B-1

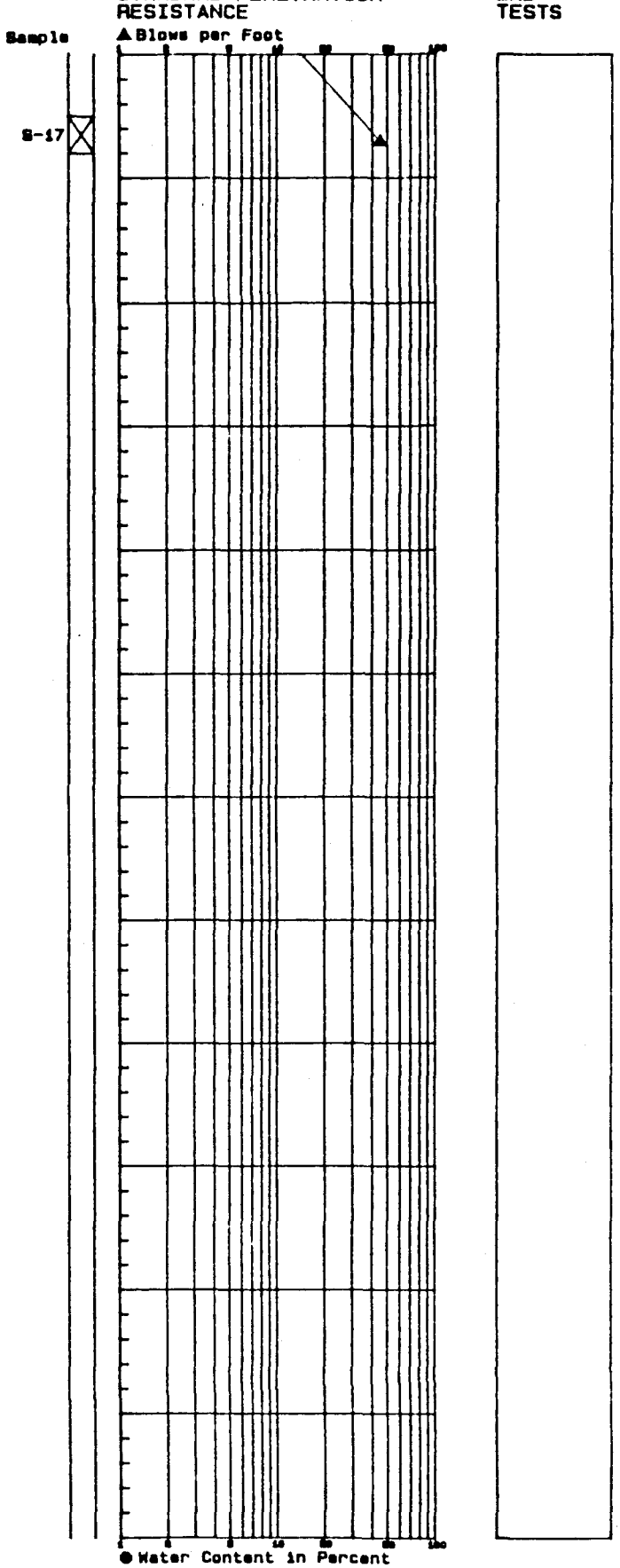
SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 35 (City Datum)

Depth in Feet

Dense, wet, gray, fine to medium SAND.

Bottom of Boring at 70.0 Feet.
Completed 12/16/85.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

□ High blow count may be due to presence of wood and/or coal.

J-1601-01 December 1985
HART-CROWSER & associates, inc.
Sheet 2 of 2 Figure A-2

B-2

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 34 (City Datum)

Asphalt
Concrete

Medium stiff to stiff, slightly gravelly, sandy, clayey SILT. (FILL)

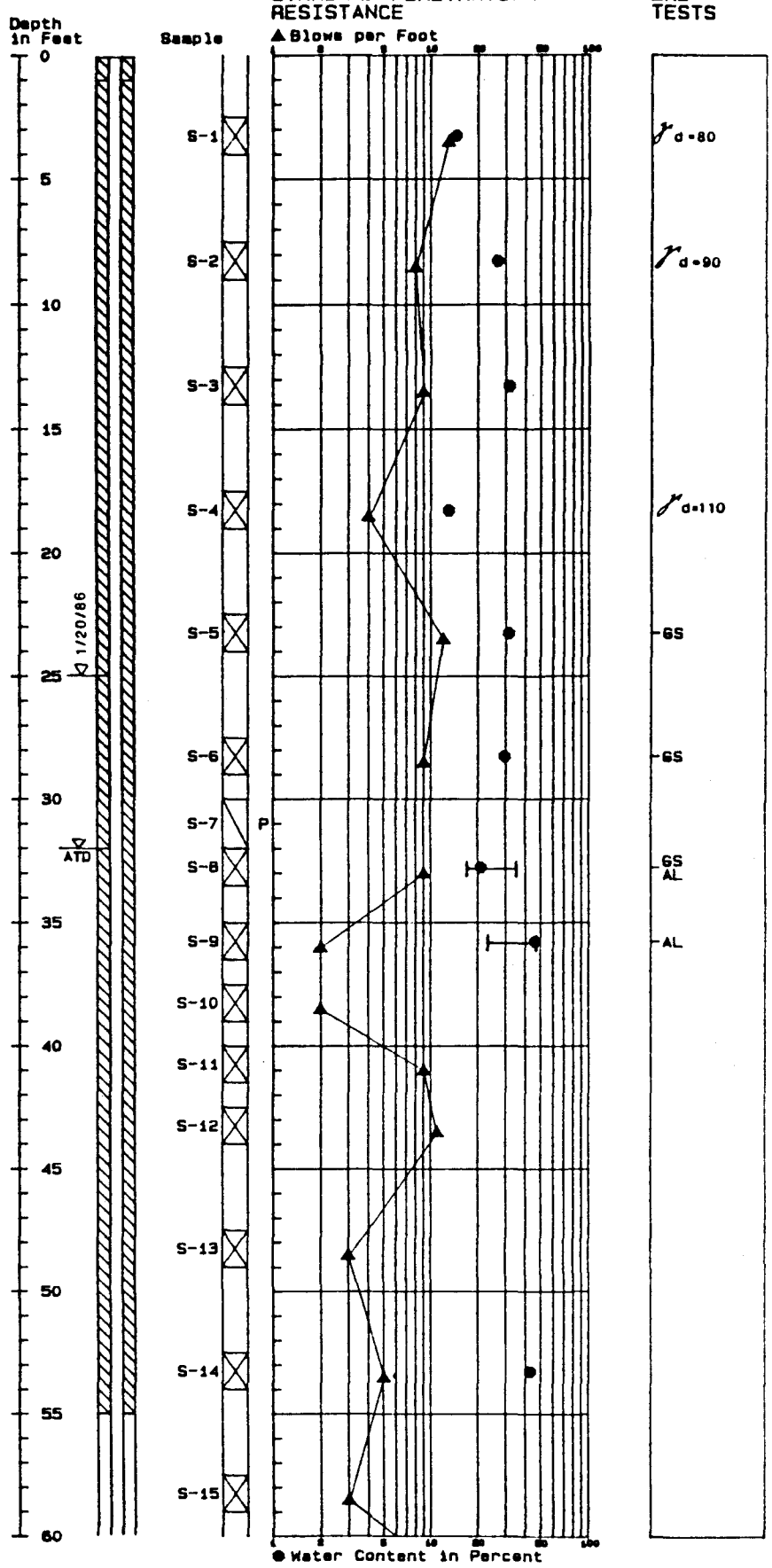
Slight chemical odor noted during drilling between 32 and 37 feet.

Loose, wet, gray, slightly gravelly, silty, very clayey SAND. (FILL)

Very soft, wet, gray, silty CLAY. (FILL)

Very loose to medium dense, wet, black, silty SAND with wood fragments. (FILL)

Soft to medium dense, wet, gray, slightly sandy SILT with occasional wood and abundant shells.



J-1601-01 December 1985

HART-CROWSER & associates, inc.

Sheet 1 of 2 Figure A-3

B-2

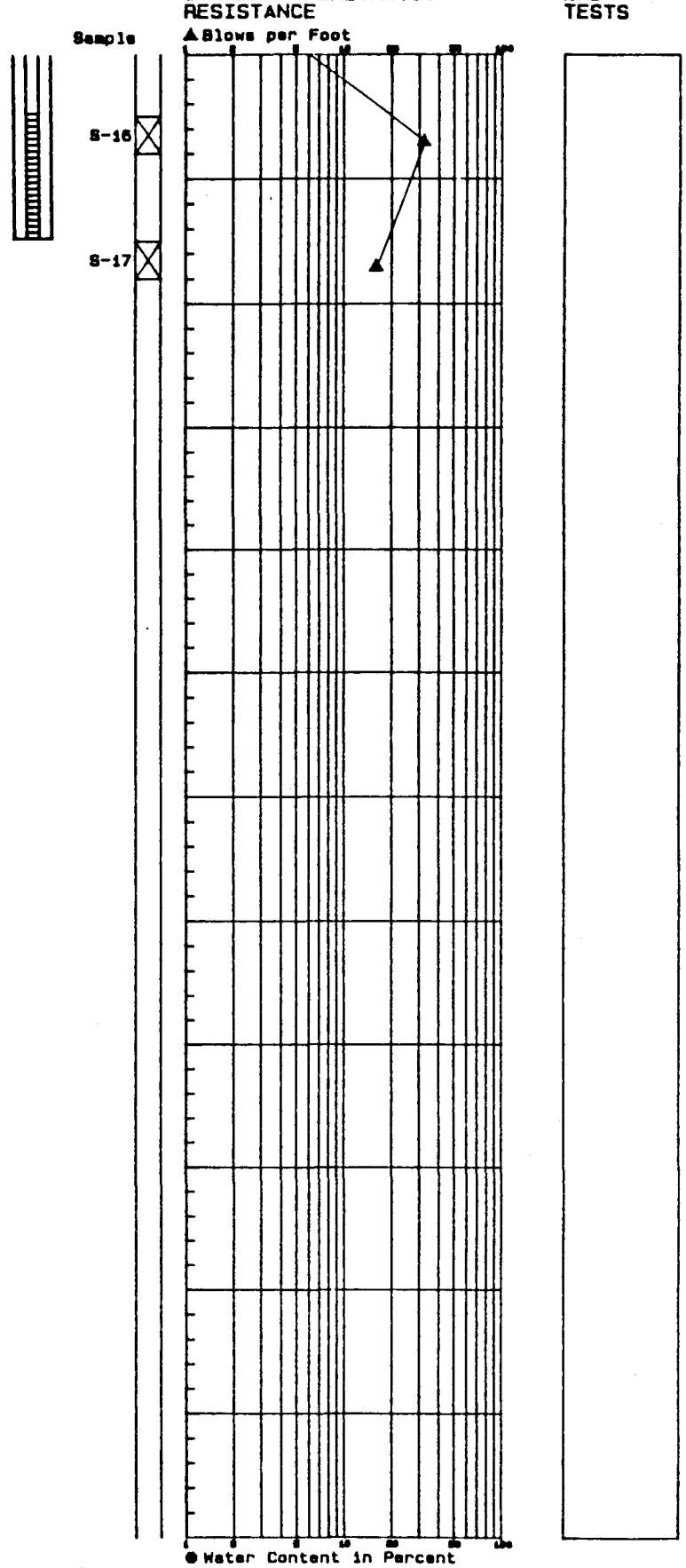
SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 34 (City Datum)

Medium dense to densse, wet, gray, silty, gravelly SAND.

Bottom of Boring at 70.0 Feet.
Completed 12/18/85.

Note: Observation well installation consists of slope indicator casing with screen.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

B-3

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 35 (City Datum)

Asphalt
Concrete

Medium dense, wet, gray, silty, gravelly SAND. (FILL)

Medium stiff, wet, gray, gravelly, sandy SILT.

Loose to medium dense, wet, gray, gravelly, silty SAND with occasional concrete fragments. (FILL)

Slight chemical odor noted during drilling between 33 and 35 feet.

Very sandy, clayey SILT. (FILL)

Loose, wet, gray, silty, gravelly SAND. (FILL)

Medium stiff to stiff, wet, gray, silty CLAY. (FILL)

Wood encountered between 47.5 to 49.0 feet.

Medium stiff, wet, gray, very sandy SILT with scattered shell fragments.

Depth in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

1/20/86
ATD

Sample

S-1, S-2, S-3, S-4, S-5, S-6 P, S-7, S-8 A B, S-9 P, S-10 A B, S-11, S-12, S-13, S-14, S-15

STANDARD PENETRATION RESISTANCE

▲ Blows per Foot

● Water Content in Percent

LAB TESTS

d=85
d=90
AL

J-1601-01 December 1985
HART-CROWSER & associates, inc.
Sheet 1 of 2 Figure A-4

B-3

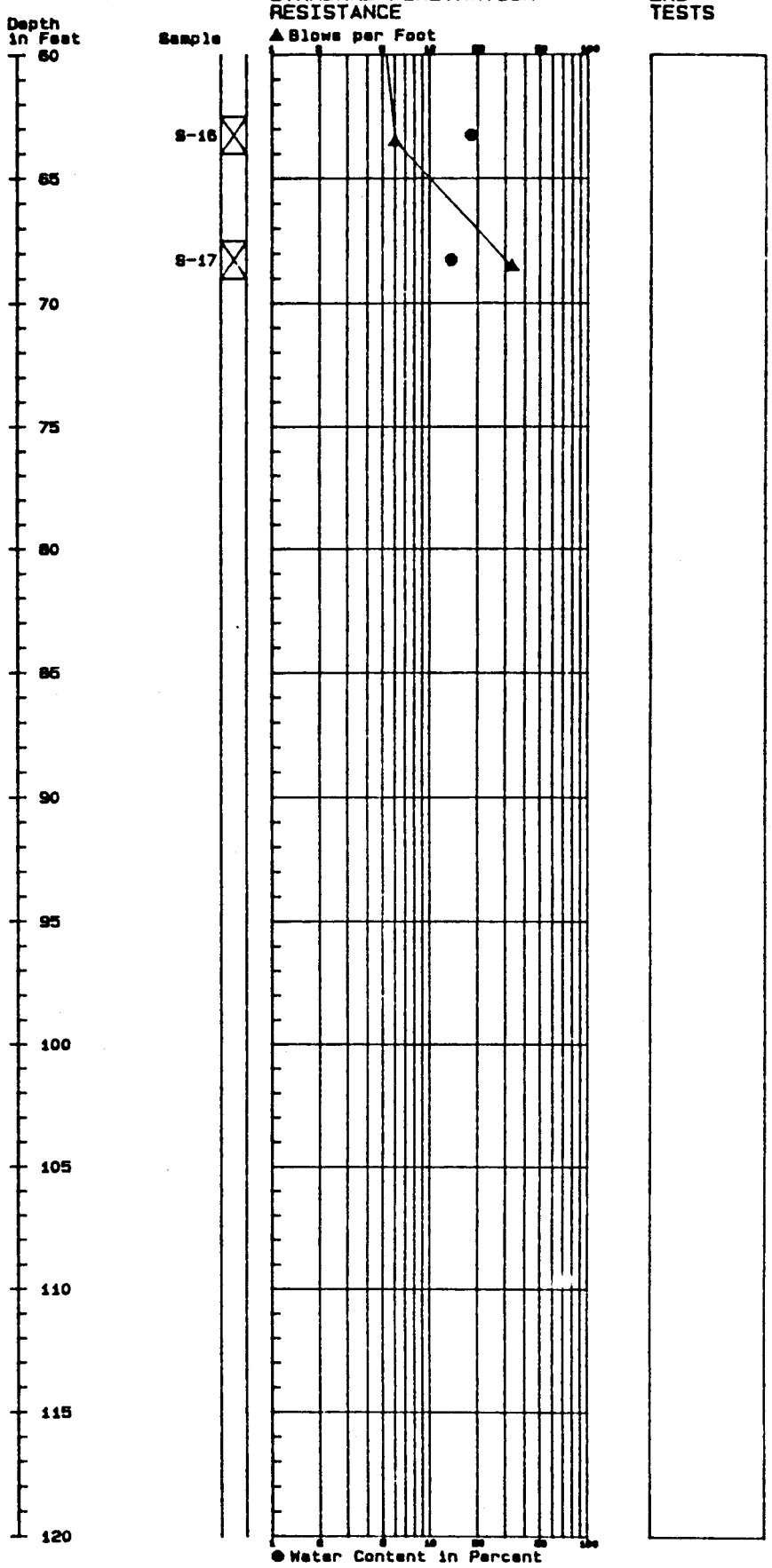
SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 35 (City Datum)

Loose, wet, gray, silty, fine SAND with shell fragments.

Dense, wet, gray, slightly gravelly, slightly silty SAND.

Bottom of Boring at 69.0 Feet.
Completed 12/20/85.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

□ High blow count due to concrete fragment in tip of sampler.

J-1601-01 December 1985
HART-CROWSER & associates, inc.
Sheet 2 of 2 Figure A-4

B-4

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 37 (City Datum)

Asphalt
Concrete

Loose to medium dense, wet, gray, slightly gravelly, very silty SAND. (FILL)

Medium stiff, wet, gray, slightly gravelly, sandy SILT. (FILL)

Medium dense, wet, gray, slightly gravelly to gravelly, silty SAND with abundant brick fragments. (FILL)

Dense, wet, gray, silty sandy GRAVEL and silty, gravelly SAND. (FILL)

Chemical odor noted during drilling between 33 and 50 feet.

Loose, wet, black COAL with occasional silty SAND. (FILL)

Chemical odor noted between 46 to 50 feet.

Loose to medium dense, wet, gray, very silty, fine SAND with shell fragments and occasional wood.

Depth in Feet

0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

1/20/86
ATD

Sample

S-1, S-2, S-3, S-4, S-5, S-6, S-7, S-8, S-9, S-10, S-11, S-12, S-13, S-14 A B, S-15 A B, S-16, S-17, S-18

P

STANDARD PENETRATION RESISTANCE

▲ Blows per Foot

● Water Content in Percent

LAB TESTS

γ_d = 82

65

J-1601-01 December 1985
HART-CROWSER & associates, inc.
Sheet 1 of 2 Figure A-5

B-4

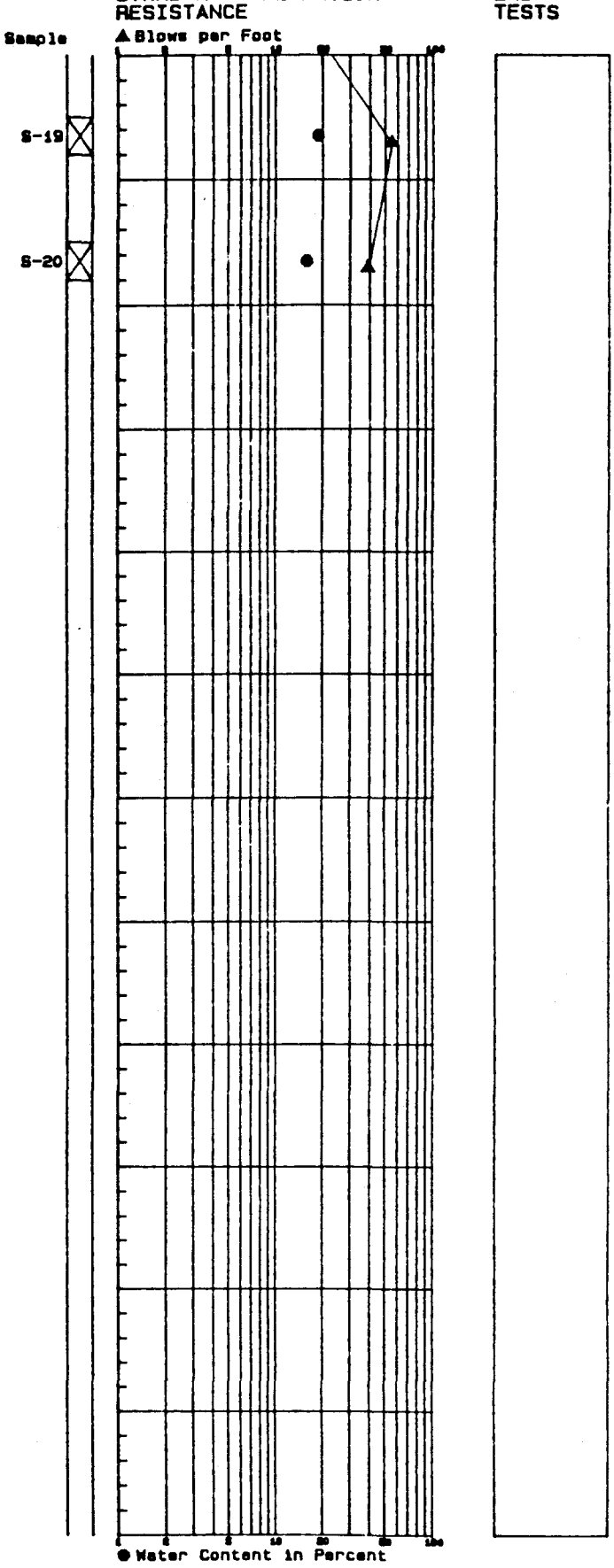
SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 37 (City Datum)

Loose to medium dense, wet, gray, very silty, fine SAND with shell fragments and occasional wood.

Dense to very dense, wet, gray, gravelly, silty SAND with shell fragments.

Bottom of Boring at 69.0 Feet.
Completed 12/23/85.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

J-1601-01 December 1985
HART-CROWSER & associates, inc.
Sheet 2 of 2 Figure A-5

Boring Log B-5

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 34 (City Datum)

Depth in Feet

Asphalt
Concrete

Loose, wet, gray, silty, very gravelly SAND. (FILL)

Sewage odor noted after hole was completed, probably from ~15 to 30 feet.

Chemical odor noted between 17 to 18 feet during drilling.

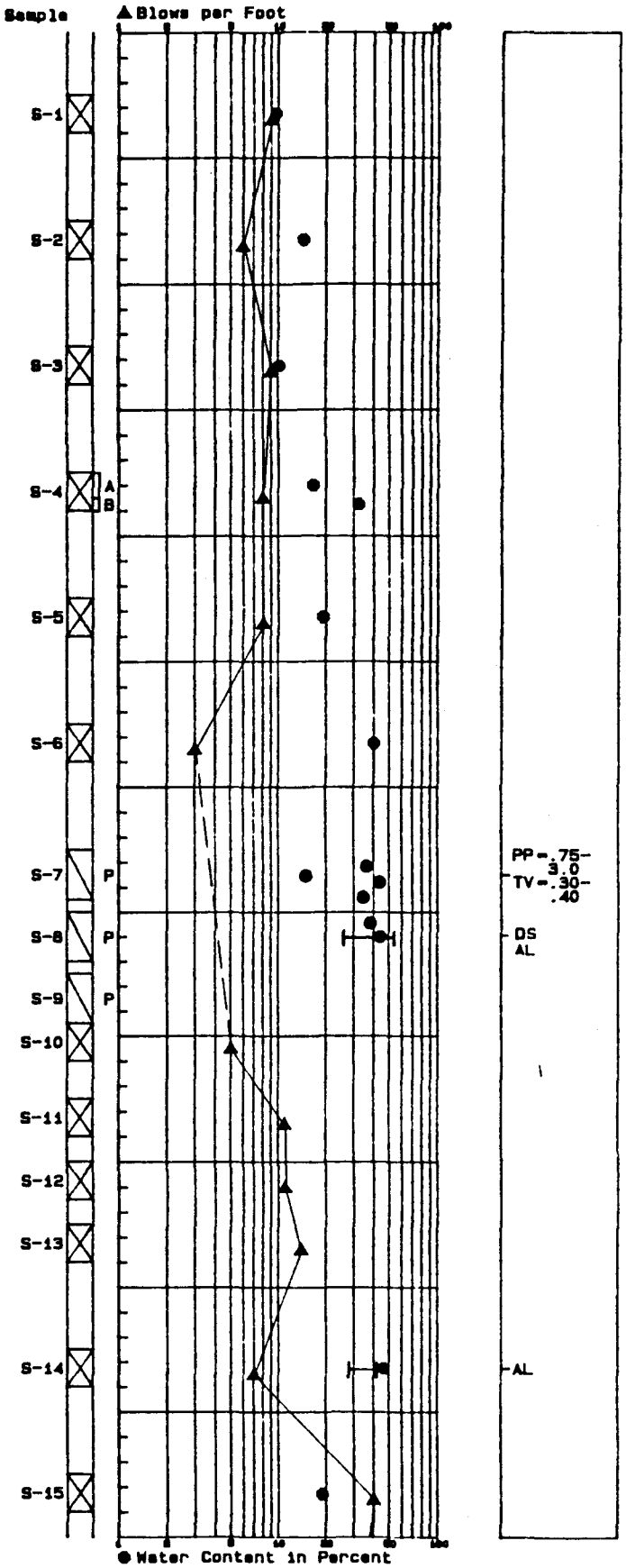
Soft, wet, gray, slightly gravelly, slightly sandy, silty CLAY with lenses of silty, fine SAND. (FILL)

Chemical odor noted while drilling between 38 to 50 feet.

Soft to stiff, wet, brown to gray, decomposed WOOD intermixed with silty, fine SAND. (FILL)

Medium stiff, wet, gray, slightly sandy, clayey SILT with shell fragments.

Dense, wet, gray, silty, sandy GRAVEL with abundant shells.



J-1601-01 December 1985

HART-CROWSER & associates, inc.

Sheet 1 of 2 Figure A-6

B-5

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 34 (City Datum)

Dense, wet, gray, slightly silty, gravelly SAND with few shells.

Very stiff, wet, gray, slightly sandy SILT.

Bottom of Boring at 69.0 Feet.
Completed 12/23/85.

Depth in Feet: 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120

STANDARD PENETRATION RESISTANCE

Sample

S-16

S-17

▲ Blows per Foot

● Water Content in Percent

LAB TESTS

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

J-1601-01 December 1985

HART-CROWSER & associates, inc.

Sheet 2 of 2 Figure A-6

B-6

SOIL DESCRIPTIONS

Ground Surface Elevation in Feet 34 (City Datum)

1-1/2-inch Asphalt over 4-inch Brick over 1-1/2-inch Mortar over 7-inch Concrete.

Medium stiff to stiff, wet, brown to gray, slightly gravelly, sandy SILT. (FILL)

Medium stiff, wet, gray, sandy, silty CLAY. (FILL)

Very stiff, wet, gray, sandy SILT with zones of gravelly, silty SAND. (FILL)

Loose, wet, gray, silty, sandy GRAVEL. (FILL)

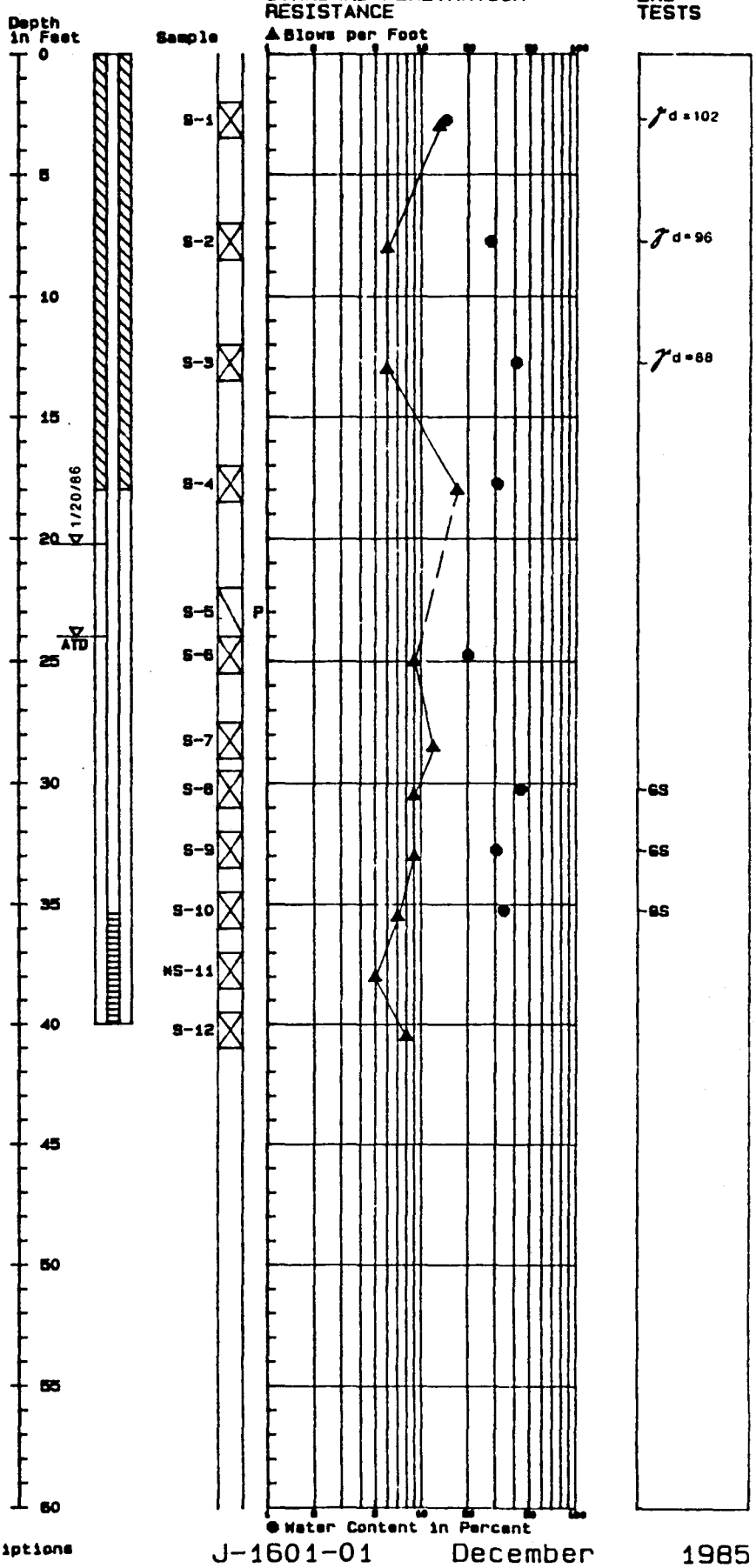
Stiff, wet, gray, slightly gravelly, clayey, sandy SILT. (FILL)

Slight chemical odor noted between 30 to 31 feet.

Loose, wet, gray, slightly clayey, very silty SAND and medium stiff, sandy SILT. (FILL)

Slight chemical odor noted between 35 to 37 feet.

Bottom of Boring at 41.0 Feet. Completed 12/23/85.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

J-1601-01 December 1985

HART-CROWSER & associates, inc.

Figure A-7

ATTACHMENT B
IDENTIFICATION OF POTENTIAL UPGRADIENT SOURCES

RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
Union Station Property
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

31622-1
c-5/Reports

Landau Associates
Environmental and Geotechnical Services

TRANSMITTAL

To: Union Station Associates
2401 Utah Avenue South, Suite 305
Seattle, WA 98134

Date: September 3, 1999

Attn: Mr. Kevin Daniels

Project No.: 429003.10

RE: IDENTIFICATION POTENTIAL OFFSITE SOURCES

Copies	Description
1	Report, Identification of Potential Upgradient Sources, Union Station Property, Seattle, WA

Message:

The above-noted report is provided for your file.

NITZE-STAGEN
SEATTLE · NEW YORK

CARL SHUMAKER
V.P. Construction/Facilities

2401 Utah Avenue South, Suite 305
Seattle, Washington 98134
Tel 206-467-0420 Fax 206-467-0423
carl@nsco.com

LANDAU ASSOCIATES, INC.

By:

Kristy J. Hendrickson, P.E.
Associate

KJH/tam
9/3/99 S:\WPROC\429\TRANSMIT.FAX\Daniels-Marten_Trn.doc
Enclosure

cc: Brad Marten, Marten & Brown

Report

Identification of Potential Upgradient Sources
Union Station Property
Seattle, Washington

LANDAU ASSOCIATES, INC.

Report

Identification of Potential Upgradient Sources
Union Station Property
Seattle, Washington

September 3, 1999

Prepared for

Union Station Associates
2401 Utah Avenue S., Suite 305
Seattle, WA 98134

Prepared by

LANDAU ASSOCIATES, INC.

130 2nd Avenue S. • Edmonds, WA 98020 • (425) 778-0907

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INTRODUCTION

The Union Station property, located in Seattle, Washington, was the site of a former coal gasification plant and railroad station (Figure 1). The property is currently under construction for the development of several buildings planned for commercial and retail use. Union Station Associates is conducting a remedial action at the property pursuant to a prospective purchaser agreement with the Washington State Department of Ecology (Ecology), including long-term groundwater monitoring.

Groundwater contamination has been detected during groundwater monitoring at the Union Station property that appears to be migrating onto the property from offsite. Based on measured groundwater elevations, the likely source areas are to the east of the property. The area of concern was identified as south of Yesler Way, north of South Plummer Street, east of 5th Avenue South, and west of 9th Avenue South. Landau Associates has conducted a site reconnaissance of the specified area (Figure 1) and reviewed historical information, regulatory database results, and Ecology files in an effort to identify potential past and present sources of groundwater contamination. This report presents an evaluation of the information obtained during the investigation of potential groundwater contamination sources.

HISTORICAL DOCUMENT REVIEW

AERIAL PHOTOGRAPHS

Aerial photographs of the specified area east of Union Station were reviewed at Walker & Associates in Seattle, Washington. All available photographs of the specified area, photographs from 14 years between 1936 and 1997, were reviewed to identify potential sources of groundwater contamination.

In 1936, the specified area primarily contained commercial and industrial buildings; however, the area southeast of 7th Avenue South and South Weller Street (approximately 20 percent of the specified area) was residential. By 1956, the commercial buildings replaced all of the residential buildings in the specified area except for a few homes on 7th Avenue South between South Weller and South Lane Streets. In 1956, trailers or containers were being stored on the property southeast of 8th Avenue South and South Dearborn Street; this site was apparently used for storage of various trailers or containers until at least 1977. By 1969, I-5 was constructed across the northeast corner of the specified site. In 1974, trailers, containers, or large vehicles were being stored on the property northeast of 8th Avenue South and South Dearborn Street; this site was apparently used for storage of various trailers, containers, or large vehicles until at least 1980. With the exception of some minor commercial developments, no significant changes were noted in the aerial photographs from 1985 to 1997.

No drums or fuel storage tanks were visible in the aerial photographs. The nature of the objects stored on the northeast and southeast corners of the 8th Avenue South and South Dearborn Street

intersection is unknown; activities associated with these objects may or may not have had potential environmental impacts.

HISTORICAL TOPOGRAPHIC MAPS

Landau Associates reviewed the *Preliminary Geologic Map of Seattle and Vicinity, Washington* [U.S. Geologic Survey (USGS) 1962]. The topography on the USGS map indicates that the specified area steadily slopes to the southwest. The elevation in the northeast corner of the specified area was approximately 175 ft, dropping to approximately 25 ft in the southwest corner of the specified area. The topography appears to be consistent with the general groundwater flow direction, which ranges from west to south.

CITY MAPS

Zoning in the area of concern was reviewed on city zoning maps from 1923 to 1999 at the City of Seattle Department of Construction and Land Use (DCLU). The following zoning classifications applied in 1923:

- Manufacturing districts included the area south of Dearborn Street, a lot northwest of the 9th Avenue South and South King Street intersection, and a lot northwest of the 8th Avenue South and South Dearborn Street intersection
- The business district included all single lots immediately south of Yesler Way
- The commercial district included all property in the area of concern not classified as manufacturing or business districts.

No zoning changes occurred in the area of concern between 1923 and 1979. By 1982, the area south of Yesler Way to the lots immediately south of South Main Street, previously business and commercial districts, was rezoned for International District residential use. Also prior to 1982, the area south of South Charles Street, previously a manufacturing district, was rezoned for general industrial use. In 1982, the area northeast of I-5, previously zoned as business and commercial districts, was rezoned for multi-family residential use. In 1985, the area north of South Dearborn Street to the lots immediately north of South Jackson Street, previously commercial and manufacturing districts, was rezoned for International District mixed use. In 1987, the area south of South Dearborn Street and North of South Charles Street, previously a manufacturing district, was rezoned for commercial use.

STREET DIRECTORIES

Landau Associates reviewed R.L. Polk city street directories for the City of Seattle for the years 1920, 1930, 1940, 1951, 1960, 1970, 1980, and 1990. Businesses with relatively high potential for causing groundwater contamination, such as gasoline stations, auto repair shops, and dry cleaners, were identified in the city street directories and are summarized in Table 1. Many of these businesses had the potential to impact groundwater quality at the Union Station site based on site activities and upgradient locations. The historical sites considered to have the greatest potential for impacting groundwater quality at the Union Station site are Jay's Union Service Station and Rhodes Domes Stadium Service Station, which operated at 500 South Jackson Street, McKales Corp Gas Station, which operated at 320 5th Avenue South, and KS Serv Gas Station, which operated at 720 5th Avenue South. These locations are adjacent to and upgradient of the Union Station property. If any spills, overfills, or leaking underground storage tanks (LUSTs) or pipes occurred at these stations, the contaminants would have a very high probability of impacting groundwater quality conditions at the Union Station property. Several dry-cleaning facilities and automobile repair shops were also located in the immediate vicinity of the Union Station property and may have impacted groundwater quality. The historical sites of interest adjacent to and upgradient of the Union Station site described above are considered to have moderate potential for impacting the groundwater at the Union Station property because contaminant sources have not been confirmed at the sites.

HISTORICAL FIRE INSURANCE MAPS

Sanborn fire insurance maps for 1969 were reviewed for the specified area. The fire insurance maps showed the use of properties and identified locations where gasoline and oil tanks were present. The following locations appeared to be involved in activities with relatively high potential for resulting in an environmental impact:

- Gasoline and oil stations
  - northeast corner of the 5th Avenue South and South Jackson Street intersection
  - northeast corner of the 5th Avenue South and South Dearborn Street intersection
  - northwest corner of the 6th Avenue South and South Dearborn Street intersection
  - southwest corner of the 6th Avenue South and South Dearborn Street intersection
  - southeast corner of the 7th Avenue South and South Jackson Street intersection
- Automobile service and repair stations
  - northeast corner of the 5th Avenue South and South King Street intersection
  - north of South Lane Street between 5th Avenue South and 6th Avenue South

- southwest corner of the 7th Avenue South and South Jackson Street intersection
- southeast corner of the 7th Avenue South and South Jackson Street intersection
- northwest corner of the Airport Way South and South Plummer Street intersection

- Machine shops
  - north of South Weller Street between 5th Avenue South and 6th Avenue South
  - northwest corner of the 7th Avenue South and South Lane Street intersection
  - southeast corner of the 8th Avenue South and South Weller Street intersection.

AREA RECONNAISSANCE

A reconnaissance of the specified area was performed August 15, 1999. During the reconnaissance, properties within the area of concern were investigated for signs of potential sources of contamination. In addition to sites with evidence suggesting potential contamination, note was also taken of businesses that frequently cause contamination, such as gas stations and dry cleaners. The properties of interest are discussed below.

A Texaco gas station located at 511 South Dearborn Street, southeast of the Union Station property, contains underground storage tanks (USTs) that provide gasoline to the gas pumps. USTs frequently leak fuel into the subsurface; however, subsurface leaks typically cannot be identified during a site reconnaissance. One unlabeled 55-gallon drum with unknown contents and a loose lid was present on the east side of the gas station. Both the USTs and the improperly secured 55-gallon drum provide potential sources of contamination.

Uwajimaya Village is currently under construction in the area north of South Dearborn Street, east of 5th Avenue South, south of South Weller Street, and west of 6th Avenue South. The entire area under construction has been excavated and several footings have been constructed for the foundation of future buildings. No soil stains were visible in the excavation. An approximately 300 ft^3 stockpile of soil and concrete was lined and covered with Visqueen at the south end of the construction site. Four 55-gallon drums were present at the southeast corner of the construction site: one drum was labeled as kerosene, one drum was labeled as unleaded gasoline, and two drums were labeled as hydraulic oil. The four 55-gallon drums observed at the construction site appeared to be in good condition and properly sealed. Potential sources of contamination at the future Uwajimaya Village construction site include the soil and concrete stockpile and handling of petroleum hydrocarbon products for construction equipment maintenance.

Eleven unlabeled 55-gallon drums were located on a small triangular parking lot on the southwest corner of the South Charles Street and Maynard Street South intersection (901 Maynard Avenue South). The drums in the parking lot were in extremely poor condition; although the lids appeared to be secure,

most of the drums had one or more holes (each approximately ½- to 1-inch in diameter) in their sides that appeared to be caused by corrosion. Staining originating from the holes in the drums indicates that liquid has leaked out of the holes. The contents of the drums are unknown; therefore, the apparent release of material from these drums is a potential source of groundwater contamination at this site.

The City of Seattle maintenance facility is located at 805 South Charles Street. A chain-link fence prevents access to the maintenance facility; therefore, no observations of soil staining or material storage were made during the site reconnaissance. The handling of petroleum hydrocarbons during the service and maintenance of city vehicles is a potential source of groundwater contamination at the City of Seattle maintenance facility.

Two dry-cleaning facilities were observed in the specified area. Spic 'n Span Cleaners operate at 652 South Dearborn Street and Re-New Cleaners operate on Maynard Avenue South between South King Street and South Weller Street. Although no signs of contamination were observed at either of these facilities at the time of the site reconnaissance, dry-cleaners frequently have problems with releases of solvents used in the dry-cleaning process.

REGULATORY DATABASE AND ECOLOGY RECORDS REVIEW

VISTA Information Solutions (VISTA) provided a report summarizing information about sites in the specified area that have been identified in state or federal databases as having recognized environmental conditions. Information about reported sites within the specified area was reviewed to identify potential sources of contamination that may have impacted groundwater quality at the Union Station site. Available Ecology records were reviewed for all sites within the specified area identified as having recognized environmental conditions. Unless indicated otherwise, all reports discussed in this section were reviewed in Ecology's records.

UST Sites With No Identified Contamination

VISTA identified five sites that contain USTs, but have no other known environmental conditions. Table 2 summarizes the identities and locations of the sites where USTs are the only environmental concerns. Lack of listing in other regulatory databases does not necessarily indicate that USTs or other activities at these sites have not caused undetected contamination. These sites should not be completely disregarded; however, the potential for impacting the Union Station property is considered moderate at upgradient sites due to the lack of confirmed contamination.

EAST-WEST INVESTMENTS

VISTA identified the East-West Investments property, on 6th Avenue South and South Lane Street, as being listed on the Washington Toxic Cleanup Program Site Register and containing at least one LUST. Review of Ecology records indicates that the East-West Investments property was the site of a former Standard Oil gas station in the 1940s. Soil at this site is contaminated with petroleum hydrocarbons; groundwater contamination is undocumented. There are no records of remedial activities at this site; therefore, it is possible that contamination from the LUST has migrated downgradient.

The East-West Investments property is located approximately 0.02 miles east (upgradient) of the Union Station property. Due to its close proximity and general groundwater flow directions ranging from the west to the southwest, the potential for impacting groundwater quality at the south end of the Union Station property is considered high.

TEXACO STATION (FORMER SHELL STATION)

VISTA identified the Texaco Station, located at 511 South Dearborn Street, as the site of at least one UST and one LUST. Information pertaining to the LUST at this site was filed under the name of the Shell Station, which was formerly located at 511 South Dearborn Street; however, the review of Ecology records indicated that the Texaco Station is an active gasoline station and currently generates and stores a gasoline, water, and benzene mixture onsite.

The first LUST at the Shell Station was initially discovered in December 1990. Four steel gasoline USTs were removed and replaced with three double-wall fiberglass USTs in 1992. Post-removal inspection of the gasoline USTs indicated that each tank was corroded and two of the tanks had small holes. Three additional USTs, which were previously unknown and undocumented, were discovered during excavation activities and were also removed in 1992 (EMCON 1992). Approximately 880 yd^3 of contaminated soil were excavated from around the USTs and the pump island and disposed of offsite during the 1992 tank removal (EMCON 1996).

A combined soil vapor extraction (SVE) and pump-and-treat system was implemented to treat groundwater contaminated by the Shell Station LUST. Groundwater contamination at the former Shell Station has been monitored during semiannual sampling events. The maximum groundwater concentrations of the constituents of interest are summarized in Table 3.

The Texaco Station property is located approximately 0.06 miles south (downgradient) of the Union Station property. Therefore, the potential for Texaco site contamination impacting the Union Station property is considered low.

EASTERN HOTEL

VISTA identified the Eastern Hotel, located at 506 ½ Maynard Avenue South, as being listed on the Washington Toxic Cleanup Program Site Register. Eastern Hotel performed a voluntary cleanup action involving the closure of a bunker fuel oil UST, removal and disposal of two diesel aboveground storage tanks (ASTs), and removal of approximately 1.51 tons of contaminated soil (Clayton 1998). The voluntary cleanup action was performed in December 1997 and Ecology issued a "no further action" letter for the site on April 23, 1998.

Because Ecology issued a "no further action" letter and there was no documentation of groundwater contamination in Ecology's records, it is likely that no groundwater contamination occurred at this site. Therefore, the potential for environmental conditions at the Eastern Hotel site to impact groundwater quality at the Union Station property is considered low.

REX HOTEL

VISTA identified the Rex Hotel, located at 657 South King Street, as being listed on the Washington Toxic Cleanup Program Site Register and containing at least one LUST. A 1,700-gallon Bunker C UST, which had several holes that allowed product leakage, was closed in place in 1993. Free product that had accumulated in the soil around the UST was removed at the time of tank closure in 1993. No further remedial action has been performed at this site; however, information in Ecology records suggests that contaminant migration and groundwater contamination are unlikely due to the clay present in the subsurface at the Rex Hotel site.

The Rex Hotel property is located approximately 0.08 miles east (upgradient) of the Union Station property. Although subsurface clay at the Rex Hotel may make contaminant migration unlikely, it is still possible; therefore, the potential for impacting groundwater quality at the south end of the Union Station property is considered moderate.

PACIFIC FISH COMPANY

VISTA identified the Pacific Fish Company, located at 617 South Dearborn Street, as the site of at least one UST and one LUST. The address used to identify this site in the Ecology records was 814 6th Avenue South. Ecology records indicated that a 10,000- to 20,000-gallon UST containing leaded gasoline or diesel fuel was removed from the Pacific Fish site circa 1977. TPH-contaminated soil, of which the Pacific Fish UST is presumed to be the source, was discovered at a concentration of 800 mg/kg in an excavation for the construction of the Salvation Army William Booth Center. There is no record of any remedial action addressing soil or groundwater contamination caused by the Pacific Fish LUST.

The Pacific Fish property is located approximately 0.08 miles southeast (crossgradient) of the Union Station property. The potential for Pacific Fish site contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

SPIC 'N SPAN CLEANERS

VISTA identified Spic 'n Span Cleaners, located at 652 South Dearborn Street, as being listed on the Washington Toxic Cleanup Program Site Register, being listed as a RCRA registered small generator of hazardous waste, and containing at least one UST. Ecology records provided information about site history and environmental investigations at the Spic 'n Span Cleaners site.

The Spic n' Span Cleaners facility was constructed in 1963; two USTs were installed at that time to store mineral spirits for use in the dry-cleaning process. By 1994, Spic 'n Span Cleaners used PCE machines exclusively; therefore, the mineral spirit USTs were put in stand-by mode. The USTs were removed and 29 tons of contaminated soil were excavated and disposed of offsite in October 1998 (Hart Crowser 1998). Table 4 summarizes the maximum contaminant concentrations observed in soil and groundwater at the Spic 'n Span Cleaners site (Hart Crowser 1997).

The Spic 'n Span Cleaners property is located approximately 0.11 miles southeast (crossgradient) of the Union Station property. Although groundwater contamination has not been remediated at the Spic 'n Span site, the potential for contamination to impact the Union Station property is considered low due to the general groundwater flow direction.

CITY OF SEATTLE

VISTA identified the maintenance division of the City of Seattle Engineering Department, located at 705 South Charles Street, as being listed on the Washington Toxic Cleanup Program Site Register and containing at least one LUST. A review of Ecology records indicated that two tank removal events have occurred at the city maintenance site. Six USTs, ranging in size from 500 to 5,000 gallons, that previously contained diesel, gasoline, heating oil, and waste oil, were removed in 1990 (SCS 1990). During the 1990 tank removal, approximately 150 to 200 yd^3 of contaminated soil (maximum TPH concentration of 3,700 mg/kg) were excavated and stockpiled onsite. Soil and groundwater investigations indicated that TPH levels in soil exceeded soil cleanup levels and TPH and benzene, ethylbenzene, toluene, and xylene (BETX) levels in groundwater exceeded groundwater cleanup levels (SCS 1991a, 1991b). In 1993, three additional 7,500-gallon USTs were removed (SCS 1993). The 7,500-gallon USTs were in very good condition; however, the fuel lines were corroded and showed evidence of leakage. During the 1990 tank removal, approximately 450 yd^3 of contaminated soil were excavated and treated

with vapor extraction. A groundwater sump and vapor venting system were installed in the excavation to treat contaminated groundwater.

The city maintenance site is located approximately 0.16 miles southeast (crossgradient) of the Union Station property. The potential for city maintenance site contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

TRIANGLE PROPERTY

A Diamond parking lot, referred to as the Triangle Property, is located at 901 Maynard Avenue South. ABC Pacific Corporation, the owner of the Pacific Fish Company, also owns the Triangle Property. VISTA identifies the Triangle Property as a LUST site, which is confirmed in Ecology's records. According to Environmental Partners, Inc., a gasoline station was operated on the Triangle Property from 1926 until 1971, when the building was razed to create the current parking lot (EPI 1996). The gasoline station used USTs to store gasoline and other unknown substances and operated two hydraulic lifts and a "grease pit". Activities at the gasoline station resulted in impacts to soil and groundwater quality at the site. Table 5 summarizes the maximum contaminant concentrations found in soil and groundwater at the Triangle Property. Ecology reports do not document any remedial actions at this site.

The Triangle Property is located approximately 0.16 miles southeast (crossgradient) of the Union Station property. The potential for the Triangle Property contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

ROMAINE ELECTRIC

VISTA identified Romaine Electric, located at 1101 Airport Way South, as being listed on the Washington Toxic Cleanup Program Site Register and containing at least one UST and at least one LUST. A review of Ecology records indicated that two USTs, one 1,700-gallon gasoline UST and one 1,700-gallon heating oil UST, were closed June 13, 1994. The records also indicated that contamination was present at the time of tank closure; there is no documentation of subsequent remedial actions.

The Romaine Electric Property is located approximately 0.18 miles southeast (crossgradient) of the Union Station property. The potential for the Romaine Electric site contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

CITY OF SEATTLE

VISTA identified the City of Seattle equipment repair facility, located at 805 South Charles Street, as containing at least one UST and at least one LUST. Ecology records indicated that four oil and waste oil USTs, ranging in size from 1,000 to 2,000 gallons, were temporarily closed December 22, 1998. No documentation regarding LUST contamination was provided in the Ecology records.

The equipment repair facility is located approximately 0.22 miles southeast (crossgradient) of the Union Station property. The potential for the equipment repair facility contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

CITY OF SEATTLE FIRE GARAGE

VISTA identified the City of Seattle Fire Garage, located at 815 South Dearborn Street, as being on the state equivalent CERCLIS list. A review of Ecology records indicated that soil beneath the fire garage is contaminated with hydraulic oil. Excavation of the contaminated soil cannot currently be completed without causing structural damage to the building. Migration of the hydraulic oil appears to be unlikely because the contamination is on top of a clay lens. Due to structural concerns and the apparent natural containment of the contamination, Ecology stated that the listing of the City of Seattle Fire Garage was not intended to drive remediation under current conditions. When future activities make a remedial action more feasible, site cleanup will be performed at that time.

The City of Seattle Fire Garage is located approximately 0.22 miles east (crossgradient) of the Union Station property. The potential for the fire garage site contamination impacting the Union Station property is considered low due to the general groundwater flow direction and the apparent stability of the hydraulic oil contamination.

KEN STATION

VISTA identified Ken Station, located at 1030 7th Avenue South, as a site containing at least one UST and at least one LUST. No further information about this site was available in Ecology records.

The Ken Station property is located approximately 0.25 miles southeast (crossgradient) of the Union Station property. The potential for the Ken Station site contamination impacting the Union Station property is considered low due to the general groundwater flow direction.

METRO SOUTH DEARBORN FACILITY

The Metro South Dearborn Facility of the King County Department of Metropolitan Services (Metro) is located at 802 South Dearborn Street and occupies land on the northwest (west parcel) and

northeast (east parcel) corners of the 8th Avenue South and South Dearborn Street intersection. VISTA identified this site as being on the Washington Confirmed Contaminated Sites Report list, the Washington Toxic Cleanup Program Site Register, and containing at least one UST and at least one LUST. Ecology records provided information about site history and environmental investigations at the Metro South Dearborn Facility.

Before 1964, one commercial building and three residential buildings occupied the west parcel. The commercial building was used as a hotel, restaurant, and winery until 1964. In 1964, the buildings on the west parcel were demolished and a parking lot was constructed. Metro purchased the west parcel in 1974 and continues to use it for parking.

From 1947 to 1974, a bus storage and service facility operated on the east parcel. USTs on the east parcel were installed to store fuel for buses. Spic 'n Span Cleaners, a dry-cleaning facility, also operated on the east parcel from the 1950s until 1974. Spic 'n Span used mineral spirits in its dry cleaning process during this period of operation. Metro purchased the east parcel in 1974 and used it for a variety of purposes, including vehicle maintenance, fueling, and parking until the late 1980s.

Several soil and groundwater investigations have been performed at the Metro South Dearborn Facility during the 1990s [Enviros 1991, 1992, 1993, 1994a, 1994b, and 1994c; King County Department of Transportation (KCDOT) 1997]. Gasoline-, diesel-, and oil-range total petroleum hydrocarbons (TPH), volatile and semivolatile compounds (VOCs and SVOCs), and lead were detected in soil and groundwater samples collected at the Metro South Dearborn Facility. Maximum concentrations in both media are summarized in Table 6.

Metro has addressed its contamination issues through UST removals, when appropriate, and remedial actions. Metro removed 5 USTs in 1990 (Boateng 1991) and another UST, which was discovered during excavation activities, in 1995 (Omega 1996). As described in its *Draft Cleanup Action Plan* (Enviros 1994c), Metro excavated surface soil and hot spots and operated an in-situ air sparging and soil vapor extraction (IAS/SVE) system to remove soil and groundwater contamination from the site. Metro's groundwater monitoring indicated that benzene and 1,1-dichloroethane (1,1-DCA) were the only contaminants exceeding groundwater cleanup levels in May 1997; 1,1-DCA was the only contaminant exceeding groundwater cleanup levels in February 1999. Based on groundwater monitoring results and the completion of soil remediation in January 1996 (Ecology 1996), Ecology issued a letter in May 1997 stating that no further action is currently needed to address environmental conditions at the Metro Dearborn Site.

The Metro South Dearborn Facility is located approximately 0.21 miles east (crossgradient) of the Union Station property. Although the groundwater in the specified area may sometimes flow toward the west, the Metro site is far enough south that it is unlikely that groundwater contamination originating at

this site would impact groundwater at the Union Station property. The potential for Metro site contamination impacting the Union Station property is considered low.

ASSISTED LIVING FACILITY

The Assisted Living Facility was not identified in the VISTA database search or Ecology's files; the information summarized below was provided to Landau Associates by Ms. Kathy Goetz Troost of Shannon & Wilson. The Assisted Living Facility is located on the 700 block of 6th Avenue South. Contaminated soil was encountered during construction activities in 1996 and a soil and groundwater investigation was subsequently performed in the northwest corner of the property, near the intersection of 6th Avenue South and South Lane Street, where a gas station reportedly operated from 1919 to 1946. Gasoline- and diesel-range hydrocarbons, methylene chloride, and several polynuclear aromatic hydrocarbons (PAHs) were detected in the soil at concentrations exceeding MTCA Method A cleanup levels (Shannon & Wilson 1996). Gasoline-range hydrocarbons and BETX were detected in the groundwater at concentrations exceeding MTCA Method A cleanup levels. Free product, identified as very old, poorly refined gasoline, was noted on the groundwater at two locations during the soil and groundwater investigation. A limited amount of contaminated soil was excavated from the Assisted Living Facility site; however, there is no documentation regarding the remediation of soil and groundwater in the contaminated northwest corner of the property.

The Assisted Living Facility is located approximately 0.08 miles east (upgradient) of the Union Station property. Due to the close proximity of this property and the general west to southwest groundwater flow direction, the potential for impacting groundwater at the south end of the Union Station site is considered high.

SUMMARY

Several sites were identified that have known environmental conditions that have impacted soil and groundwater quality. Additional sites without confirmed contamination, but considered to have the potential to impact soil and groundwater quality, were identified during a review of historical records. Table 7 summarizes the sites that are considered to have moderate to high potential for impacting groundwater quality at the Union Station property. Figure 2 shows the locations of the sites summarized in Table 7.

LIMITATIONS

The findings conveyed in this assessment are based entirely on the documents available at the time of review and conditions in the specified area at the time of the site reconnaissance. Inferences made from observations made during the site reconnaissance are only valid as long as site conditions remain the same. Landau Associates cannot and does not guarantee the authenticity or reliability of the information it has relied upon. This assessment is not a Phase I Environmental Site Assessment (ESA) as defined in ASTM E 1527-97, although certain elements of a Phase I ESA were performed as part of this investigation.

LANDAU ASSOCIATES, INC.

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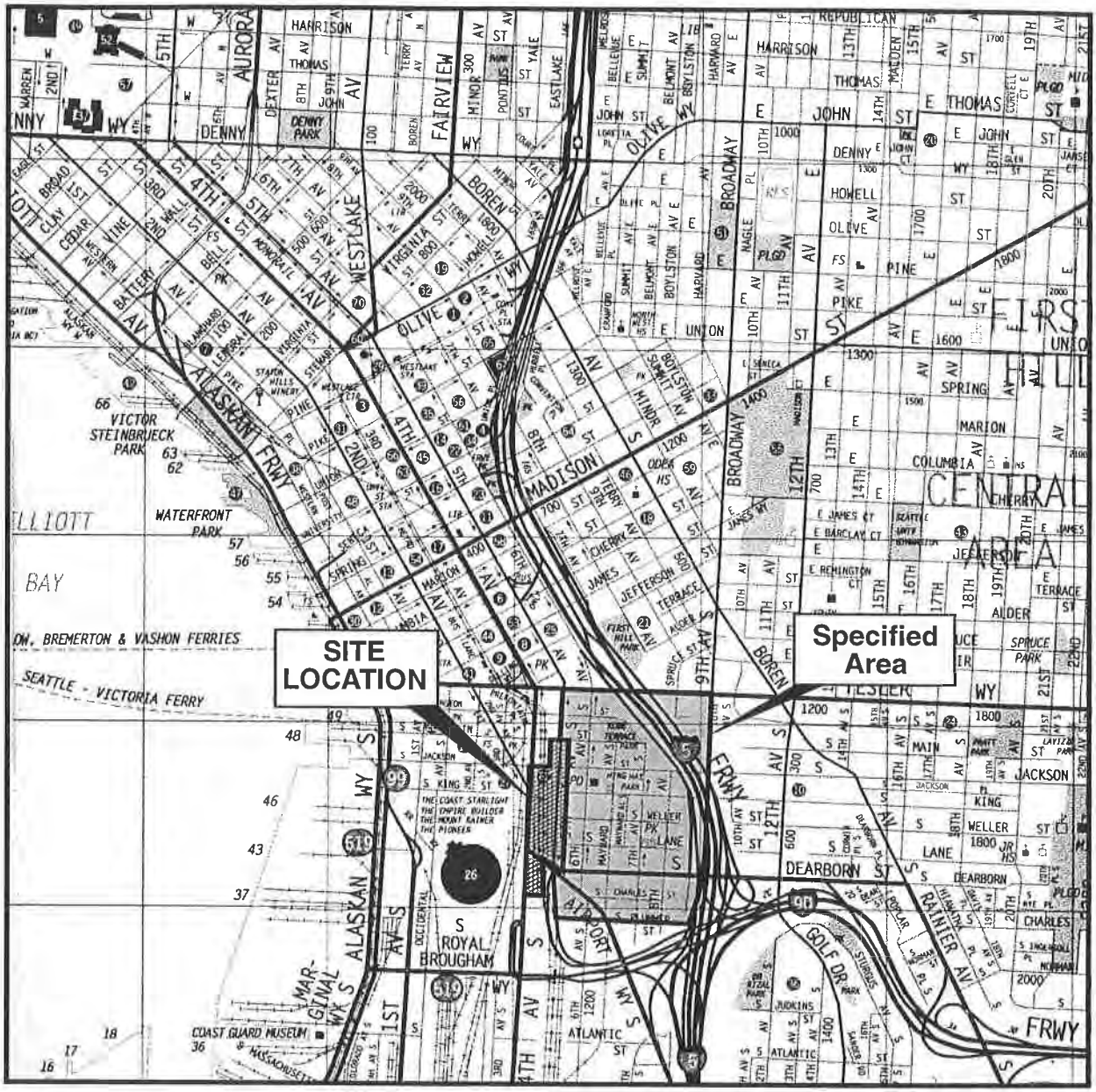
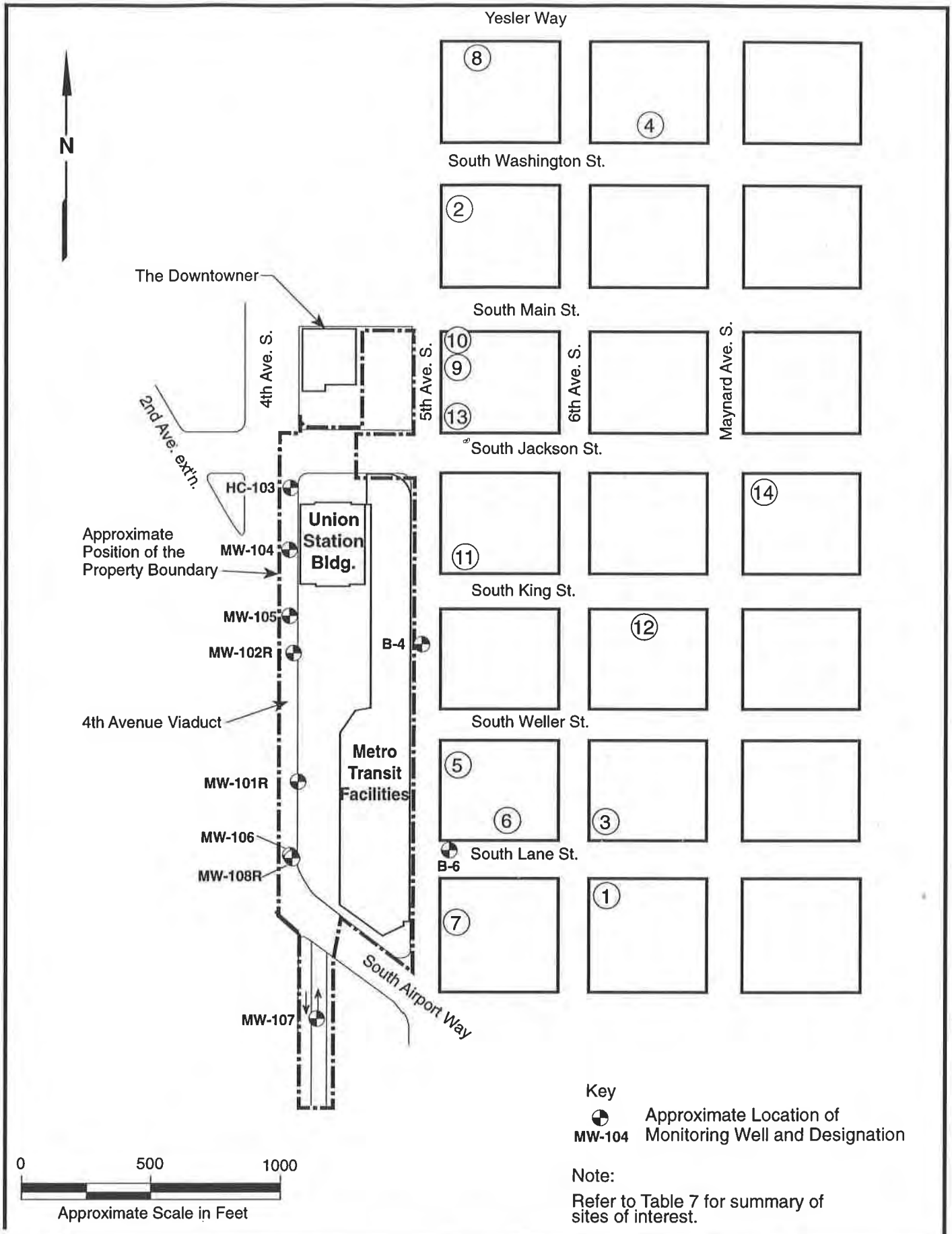


Union Station Associates/Groundwater Contamination Sources Report S:\Acad\429003\01\Fig1.FH8 8/99

	Vicinity Map	Figure 1



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Locations of Site of Interest

Figure 2

TABLE 1
SUMMARY OF BUSINESSES OF CONCERN
FROM HISTORICAL CITY STREET DIRECTORIES

			Polk City Street Directory Year							
Name of Business	**Street Address**	**Type of Business**	**1920**	**1930**	**1940**	**1951**	**1960**	**1970**	**1980**	**1990**
Alps Dye Works	616 S King St	Clothing cleaner		X						
Art Dye Works	718 7th Ave S	Clothing cleaner		X						
Asahi Garage	616 6th Ave S	Auto repair			X					
Blue Ribbon Garage, Inc.	413 7th Ave S	Auto repair		X						
Century Auto Rebuild	403 7th Ave S	Auto repair						X	X	
China Garage	413 7th Ave S	Auto repair			X					
China Super Service	701 S Jackson St	Gas station			X					
China Super Service	805 S Jackson St	Gas station				X	X			
City Engineering Department (Maintenance)	705 S Charles St	City maintenance						X		
City Engineering Department (Maintenance)	714 S Charles St	City maintenance							X	
City Metro (Equipment Repair)	805 S Charles St	City maintenance						X	X	X
City of Seattle Maintenance Shop	805 S Charles St	City maintenance					X			
Clean Up Shop	216a 5th Ave S	Clothing cleaner				X				
Dearborn Carter Service Center	514 S Dearborn St	Gas station					X			
Depot Garage	410 5th Ave S	Auto repair			X	X	X	X	X	
Detroit Garage	403 7th Ave S	Auto repair				X	X			
Detroit Garage	708 S Jackson St	Auto repair		X	X					
Eagle Dye Works	1006 7th Ave S	Clothing cleaner		X						
Echigoshima	912 S Dearborn St	Auto repair	X							
Gene Merlino	900 Airport Way	Gas station			X	X	X			
General Motors Truck Center	600 5th Ave S	Auto repair						X		
George's Laundry & Cleaning	609 S King St	Clothing cleaner						X		
Gilt Edge Cleaners	611 S Jackson St	Clothing cleaner					X			
Gilt Edge Cleaners	657 S Jackson St	Clothing cleaner						X	X	X
GMC Truck Center	508 S Lane St	Auto repair							X	X
Golden Dye Works	310 5th Ave S	Clothing cleaner		X						
Herb's Repair Shop	413 7th Ave S	Auto repair					X	X		
Huck's Cleaners	304 Maynard Ave S	Clothing cleaner						X		
Interstate Truck Service	815 S Dearborn St	Gas station				X				
Ishitani Yosue	912 Yesler Way	Clothing cleaner			X					
Jay's Union Service Station	500 S Jackson St	Gas station						X		
Jimmie-John Co.	677 S King St	Clothing cleaner		X						
K S Serv Gas Station	720 5th Ave S	Gas station					X			
Kono Garage	311 6th Ave S	Auto repair				X				

TABLE 1
SUMMARY OF BUSINESSES OF CONCERN
FROM HISTORICAL CITY STREET DIRECTORIES

			Polk City Street Directory Year							
Name of Business	**Street Address**	**Type of Business**	**1920**	**1930**	**1940**	**1951**	**1960**	**1970**	**1980**	**1990**
Kunitsugu Tajuro	515 Yesler Way	Clothing cleaner		X	X					
Mayaman Roman	616 S King St	Clothing cleaner			X	X				
McKales Corp Gas Station	320 5th Ave S	Gas station					X			
Metro Transit Corp (Maintenance)	802 S Dearborn St	City maintenance						X	X	
Milwaukee Dye Works	670 S King St	Clothing cleaner		X	X					
Nakayawa Ichiriki	664 S Jackson St	Clothing cleaner			X					
New Eagle Garage	706 6th Ave S	Auto repair	X	X	X					
New Golden Cleaners & Pressers	659 S Jackson St	Clothing cleaner				X				
NP Hotel Cleaners	306 6th Ave S	Clothing cleaner				X				
Ogata Ichiro	412 6th Ave S	Clothing cleaner			X					
Ogohara Shikano	821 S Jackson St	Clothing cleaner			X					
Omura Taka	611 S Main St	Clothing cleaner			X					
Oshio Tamezo	310 5th Ave S	Clothing cleaner			X					
Pick Up Cleaners	506 S King St	Clothing cleaner				X				
Re-New Cleaners & Tailors	505 Maynard Ave S	Clothing cleaner			X	X	X	X	X	X
Rhodes Domes Stadium Service Station	500 S Jackson St	Gas station							X	
Rose Laundry & Dye Works	819 Yesler Way	Clothing cleaner		X						
S N Dye Works	412 6th Ave S	Clothing cleaner		X						
Seventh Avenue Auto Rebuild	720 S Jackson St	Auto repair							X	
Seventh Avenue Service	701 S Jackson St	Gas station				X	X	X	X	X
Shell Service Station	511 S Dearborn St	Gas station				X	X	X	X	X
Sixth Avenue South Service Station	6th Ave S & S Charles St	Gas station		X						
Smile's Dry Cleaners	304 Maynard Ave S	Clothing cleaner					X			
Spic 'n Span Cleaners	652 S Dearborn St	Clothing cleaner						X	X	X
Spic 'n Span Cleaners	816 S Dearborn St	Clothing cleaner					X			
Terry's Auto Serv	815 S Dearborn St	Gas station					X			
Togo Cleaners	310 6th Ave S	Clothing cleaner			X					
Togo Garage & Repair Shop	6th Ave S	Auto repair	X							
Tomita Heitaro	721 S Jackson St	Gas station			X					
Utility Garage	924 S King St	Auto repair	X							
Welcome Tailor & Dye Works	669 S Jackson St	Clothing cleaner		X	X					
Wilford McCreery	1000 6th Ave S	Gas station			X					
Yick Kee	422 7th Ave S	Clothing cleaner			X					

TABLE 2
SUMMARY OF UST SITES
WITHOUT CONFIRMED CONTAMINATION

Name of Business	Street Address	Direction from Union Station Property (a)	Distance (a) (mi)
General Motors Truck Center	600 5th Ave S	North (upgradient)	0.00
Immigration National Service	815 Airport Way	South (downgradient)	0.07
5475	500 S Jackson St	East (upgradient)	0.06
Seventh Avenue Service	701 S Jackson St	East (upgradient)	0.16
Fort Lawton ARSR	654 S Washington St	Northeast (upgradient)	0.20

(a) Listed site direction and distances are given with respect to the corner of 5th Ave S and S Weller St

TABLE 3
MAXIMUM CONTAMINANT CONCENTRATIONS IN GROUNDWATER
TEXACO STATION (FORMER SHELL STATION)

Contaminant	Maximum Groundwater Concentration (µg/L)
Benzene	21,000
Toluene	730
Ethylbenzene	1,300
Xylene	4,210
TPH-G	50,000
TPH-D	3,160
TPH-O	1,360
Total lead	160
MTBE	36

TABLE 4
MAXIMUM CONTAMINANT CONCENTRATIONS
SPIC 'N SPAN CLEANERS

Contaminant	Maximum Groundwater Concentration (µg/L)	Maximum Soil Concentration (mg/kg)
TPH	1,310,000	3,190
Benzene	ND	ND
Toluene	39	ND
Ethylbenzene	1,280	1.49
Xylene	6,440	12.9
PCE	6.4	4.82
TCE	6.0	0.06
DCE	99.2	ND
DCA	5.4	ND
Vinyl chloride	82	NA

ND = Not Detected.
NA = Not Analyzed.

TABLE 5
MAXIMUM CONTAMINANT CONCENTRATIONS IN GROUNDWATER
TRIANGLE PROPERTY

Contaminant	Maximum Groundwater Concentration (µg/L)	Maximum Soil Concentration (mg/kg)
TPH-G	4,400	90
TPH-D	6,300	57
TPH-O	55,000	86
Stoddard solvent	560	NA
Benzene	700	0.13
Toluene	18	0.092
Ethylbenzene	60	0.34
Xylene	108	1.24

NA = Not Analyzed.

TABLE 6
MAXIMUM CONTAMINANT CONCENTRATIONS
METRO SOUTH DEARBORN FACILITY

Contaminant	Maximum Groundwater Concentration (µg/L)	Maximum Soil Concentration (mg/kg)
TPH	63,000	26,000
TPH-D	13,000	3,200
TPH-G	67,000	10,000
TPH-O	810	NA
Benzene	4,200	12
Toluene	5,100	110
Ethylbenzene	710	>100
Xylene	10,400	390
Acetone	22	1.1
PCE	NA	0.280
TCE	0.85	0.0039
Trichlorofluoromethane	NA	0.0047
MEK	68	NA
Chloroform	11	NA
Chloromethane	11	NA
1,2-DCA	410	NA
Total lead	61	NA
Dissolved lead	2	NA
Carbon disulfide	1	NA
2-Hexanone	61	NA
TCA	4.2	NA
bis-2-Ethylhexylphthalate	6.4	NA
2,4-Dimethylphenol	300	NA
di-n-Butylphthalate	30	NA
Isophorone	1	NA
2-Methylnaphthalene	100	NA
4-Methyl phenol	20	NA
Naphthalene	220	NA
Methylene chloride	5.6	NA
1,1-DCE	2.4	NA
Isopropylbenzene	3.6	NA
sec-Butylbenzene	1.1	NA

NA = Not Analyzed.

TABLE 7
SUMMARY OF SITES WITH MODERATE TO HIGH POTENTIAL FOR IMPACTING GROUNDWATER AT UNION STATION

Figure 2 ID	Name of Business	Street Address	Impact Potential	Potential Contaminants	Known Contamination
1	Assisted Living Facility (former site of New Eagle Garage)	700 block of 6th Ave S	High	TPH, BETX, PAHs	X
2	Clean Up Shop	216a 5th Ave S	Moderate	Solvents	
3	East-West Investments	6th Ave S & S Lane St	High	TPH, BETX	X
4	Fort Lawton ARSR	654 S Washington St	Moderate	TPH, BETX	
5	General Motors Truck Center	600 5th Ave S	Moderate	TPH	
6	GMC Truck Center	508 S Lane St	Moderate	TPH	
7	K S Serv Gas Station	720 5th Ave S	Moderate	TPH, BETX	
8	Kunitsugu Tajuro	515 Yesler Way	Moderate	Solvents	
9	McKales Corp Gas Station	320 5th Ave S	Moderate	TPH, BETX	
10	Oshio Tamezo (former site of Golden Dye Works)	310 5th Ave S	Moderate	Solvents	
11	Pick Up Cleaners	506 S King St	Moderate	Solvents	
12	Rex Hotel	657 S King St	Moderate	TPH	X
13	Rhodes Domes Stadium Service Station (former site of Jay's Union Service Station)	500 S Jackson St	Moderate	TPH, BETX	
14	Seventh Avenue Service	701 S Jackson St	Moderate	TPH, BETX	

ATTACHMENT C
ANNUAL GROUNDWATER AND INDOOR VAPOR MONITORING – 2020, NORTH LOT BY EHSI

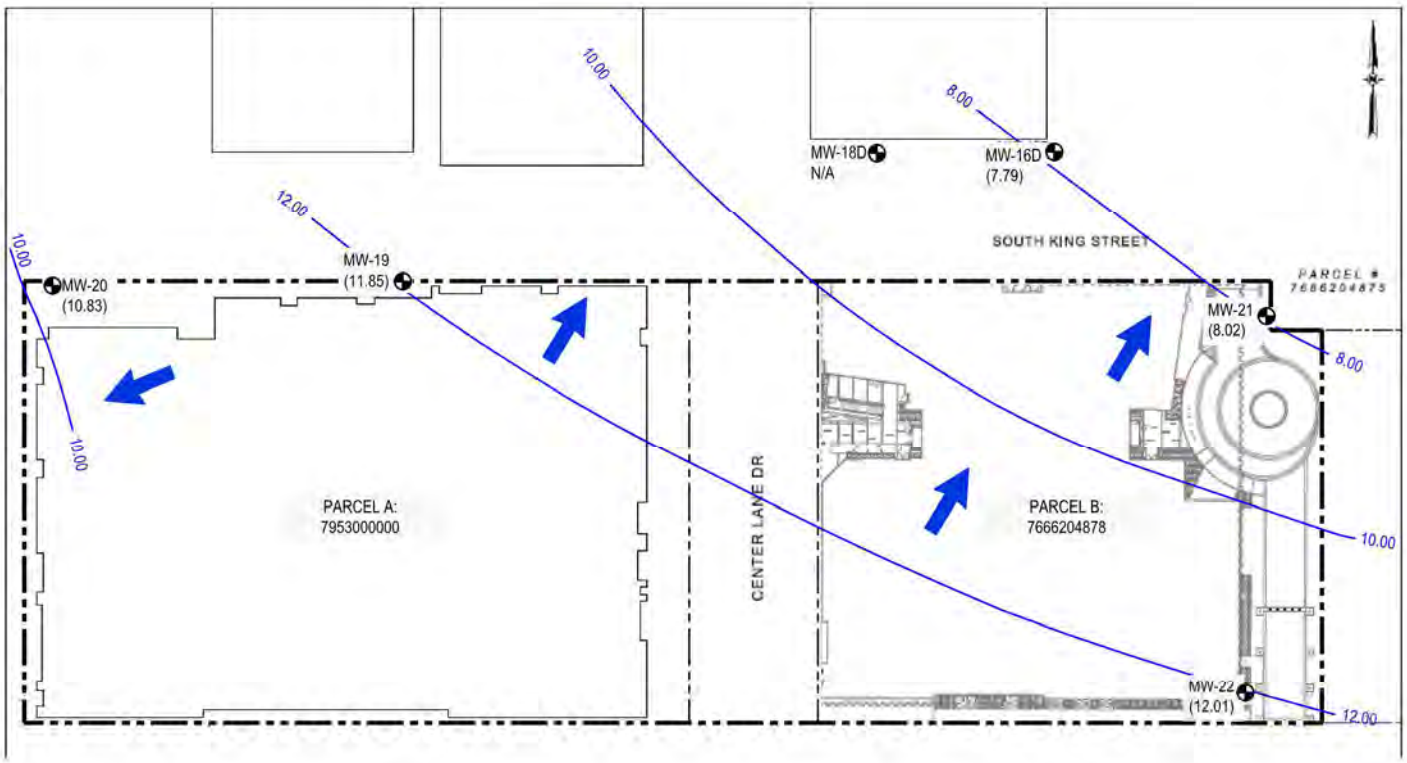
RESPONSE TO ECOLOGY COMMENTS ON PERIODIC REVIEW
Union Station Property
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

SHEET/FIGURE		GROUNDWATER AND INDOOR AIR QUALITY EVENT 201 AND 255 SOUTH KING STREET SEATTLE, WASHINGTON
1	PROJECT MANAGER: J CASS EHSI PROJECT #: 11354-01 PREPARED BY: F DIMALANTA ISSUE DATE: 03/06/20 SCALE: SHOWN	SITE LOCATION MAP

ehsi
A Subsidiary of SoundEarth Strategies
1011 SW Klickitat Way, Suite 104
Seattle, Washington 98134
Ph: 206.381.1128
Fax: 206.254.4275

IMAGE REF: ROTHMAN & ASSOCIATES, 2018



LEGEND:

MW-X (X.XX)	MONITORING WELL w/ GROUNDWATER ELEV. TAKEN 01/21/2020
N/A	NOT ACCESSIBLE
	2-FOOT INTERVAL GROUNDWATER CONTOUR
	SITE BOUNDARY
	PARCEL BOUNDARY
	GROUNDWATER FLOW DIRECTION ARROW

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

0 40 80
SCALE in FEET

NORTH

SHEET/FIGURE		
2	PROJECT MANAGER:	J CASS
	EHSI PROJECT #:	11354-01
	PREPARED BY:	F DIMALANTA
	ISSUE DATE:	03/06/20
	SCALE:	SHOWN

GROUNDWATER AND INDOOR AIR QUALITY EVENT
201 AND 255 SOUTH KING STREET
SEATTLE, WASHINGTON

SAMPLE LOCATION MAP - GROUNDWATER

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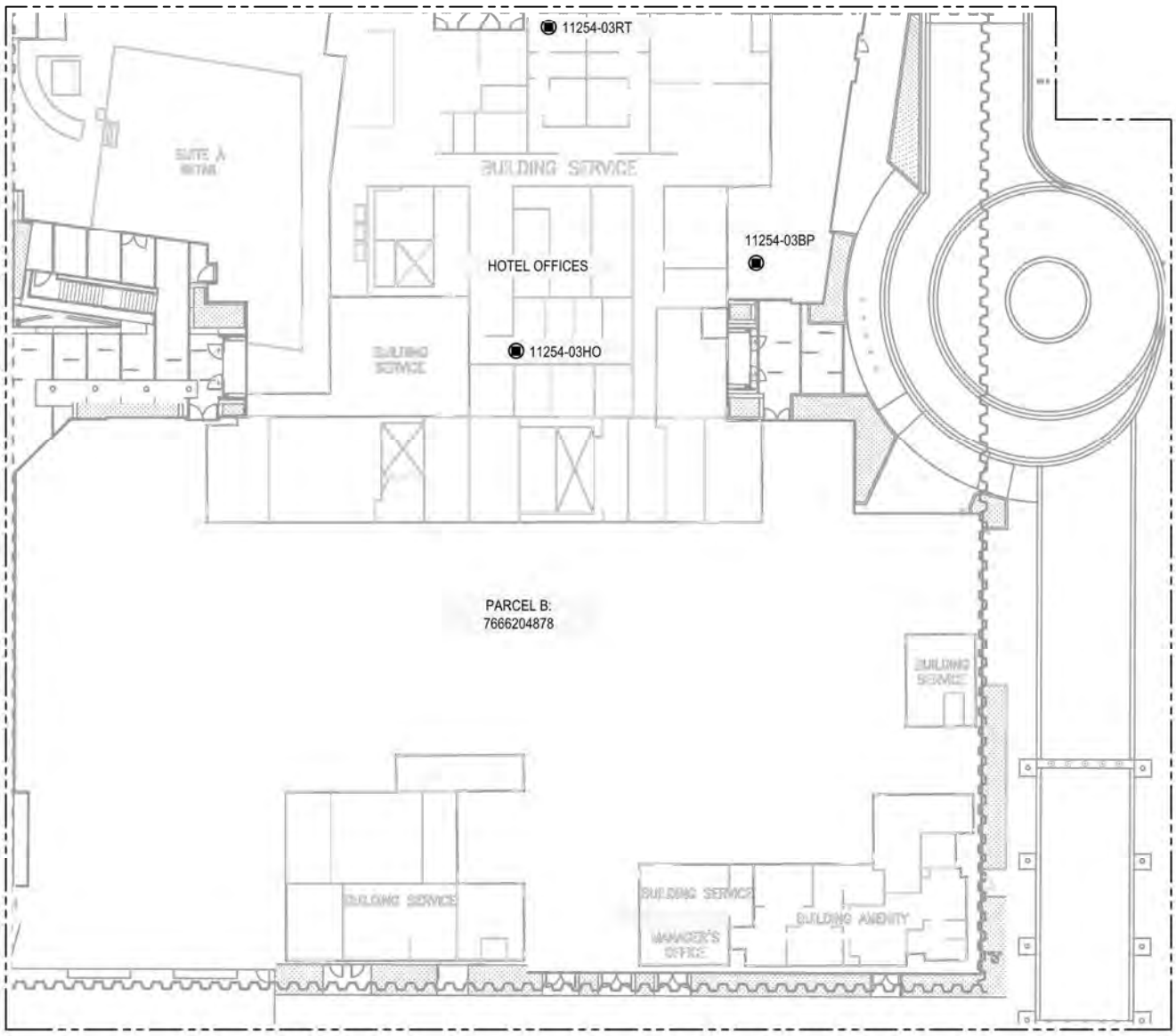

IMAGE REF: ROTHMAN & ASSOCIATES, 2018

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

0 20 40
SCALE in FEET

LEGEND:

XXXX INDOOR AIR SAMPLE

PARCEL BOUNDARY

NORTH

SHEET/FIGURE		
3	PROJECT MANAGER:	J CASS
	EHSI PROJECT #:	11354-01
	PREPARED BY:	F DIMALANTA
	ISSUE DATE:	03/06/20
	SCALE:	SHOWN

GROUNDWATER AND INDOOR AIR QUALITY EVENT
201 AND 255 SOUTH KING STREET
SEATTLE, WASHINGTON

SAMPLE LOCATION MAP - INDOOR AIR FOR PARCEL B

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Table 1
Groundwater Data
North Lot
201 and 255 South King Street
Seattle, Washington

Revised 3/27/2020

Monitoring Well ID	Sample Date	Depth to Groundwater (feet)	Groundwater Elevation (feet msl)	DRPH[1]	ORPH[1]	GRPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	cPAHs[4]	Arsenic[5]
MW-16D	08/04/17	10.39	7.21	<50	<250	<100	<0.8	<1	<1	<3	0.0693	<1
TOC: 17.60'	11/08/17	10.12	7.48	<60	<300	<100	<0.8	<1	<1	<3	0.00655	<1
	02/08/18	9.50	8.10	<30	<150	<100	<0.8	1.0	<1	<3	0.00655	<1
	05/10/18	10.15	7.45	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	09/28/18	10.07	7.53	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	12/19/18	9.83	7.77	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	03/20/19	10.11	7.49	--	--	--	--	--	--	--	--	--
	06/20/19	10.15	7.45	--	--	--	--	--	--	--	--	--
	01/21/20	9.81	7.79	<50	<250	<100	<0.8	<1	<1	<3	0.00655	1.06
MW-18D	08/02/17	11.09	6.08	<50	<250	<100	<0.8	<1	<1	<3	0.0693	7.01
TOC: 17.17'	11/08/17	10.71	6.46	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.87
	02/08/18	10.64	6.53	<30	<150	<100	<0.8	1.1	<1	<3	0.00655	1.25
	05/10/18	10.75	6.42	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.44
	09/28/18	10.66	6.51	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	12/19/18	10.44	6.73	<50	<250	<100	<0.8	<1	<1	<3	0.00655	1.83
	03/20/19	10.79	6.38	--	--	--	--	--	--	--	--	--
	06/20/19	No Access	--	--	--	--	--	--	--	--	--	--
	01/21/20	No Access	--	--	--	--	--	--	--	--	--	--
MW-19	08/02/17	6.32	11.17	<50	<250	<100	<0.8	<1	<1	<3	0.0693	2.61
TOC: 17.49'	11/08/17	6.18	11.31	<65	<320	<100	<0.8	<1	<1	<3	***0.01335***	2.14
	02/08/18	7.65	9.84	36[x]	150	<100	<0.8	1.2	<1	<3	***0.02668***	2.42
	05/10/18	6.01	11.48	<50	<250	<100	<0.8	<1	<1	<3	***0.019914***	2.10
	09/28/18	5.99	11.50	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.10
	12/19/18	5.83	11.66	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.10
	03/20/19	5.80	11.69	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.02
	06/20/19	5.84	11.65	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.01
	01/21/20	5.64	11.85	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.05
Site-Specific Cleanup Levels for Groundwater[6]				**500**	**500**	**800**	**0.8**	**80**	**275**	**1,600**	**0.012[7]**	**5/21.3[8]**

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Table 1
Groundwater Data
North Lot
201 and 255 South King Street
Seattle, Washington

Revised 3/27/2020

Monitoring Well ID	Sample Date	Depth to Groundwater (feet)	Groundwater Elevation (feet msl)	DRPH[1]	ORPH[1]	GRPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	cPAHs[4]	Arsenic[5]
MW-20	08/02/17	7.58	9.93	62[x]	<250	<100	<0.8	<1	<1	<3	0.0693	<1
TOC: 17.51'	11/08/17	7.59	9.92	<75	<380	<100	<0.8	<1	<1	<3	0.00655	<1
	02/08/18	9.45	8.06	42[x]	<150	<100	<0.8	<1	<1	<3	0.00655	<1
	05/10/18	7.33	10.18	92[x]	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	09/28/18	7.49	10.02	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	12/19/18	6.69	10.82	53[x]	<250	<100	<0.8	<1	<1	<3	0.00655	<1
	03/20/19	3.72	13.79	--	--	--	--	--	--	--	--	--
	06/20/19	6.90	10.61	--	--	--	--	--	--	--	--	--
	01/21/20	6.68	10.83	<50	<250	<100	<0.8	<1	<1	<3	0.00655	<1
MW-21	08/02/17	9.73	7.44	<50	<250	<100	<0.8	<1	<1	<3	0.0693	6.23
TOC: 17.17'	11/08/17	9.45	7.72	<60	<300	<100	<0.8	<1	<1	<3	0.00655	4.34
	02/08/18	9.34	7.83	<30	<150	<100	<0.8	1.0	<1	<3	0.00655	1.74
	05/10/18	9.53	7.64	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.06
	09/28/18	9.43	7.74	<50	<250	<100	<0.8	<1	<1	<3	0.00655	5.42
	12/20/18	9.16	8.01	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.64
	03/20/19	9.46	7.71	<50	<250	<100	<0.8	<1	<1	<3	0.00655	1.67
	06/20/19	9.49	7.68	<50	<250	<100	<0.8	<1	<1	<3	0.00655	2.96
	01/21/20	9.15	8.02	<50	<250	<100	<0.8	<1	<1	<3	0.00655	1.47

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Table 1
Groundwater Data
North Lot
201 and 255 South King Street
Seattle, Washington

Revised 3/27/2020

Monitoring Well ID	Sample Date	Depth to Groundwater (feet)	Groundwater Elevation (feet msl)	DRPH[1]	ORPH[1]	GRPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	cPAHs[4]	Arsenic[5]
MW-22	08/02/17	6.51	10.63	180[x]	<250	<100	<0.8	<1	<1	<3	0.0693	7.21
TOC: 17.14'	11/08/17	6.10	11.04	330	<300	<100	<0.8	<1	<1	<3	0.00655	5.97
	02/08/18	5.27	11.87	***640***	310[x]	<100	<0.8	<1	<1	<3	0.00655	1.72
	05/10/18	5.97	11.17	***520*** [x]	480[x]	<100	<0.8	<1	<1	<3	0.00655	1.34
	09/28/18	6.43	10.71	<50	<250	<100	<0.8	<1	<1	<3	0.00655	4.58
	12/20/18	4.76	12.38	180[x]	<250	<100	<0.8	<1	<1	<3	0.00655	1.53
	03/20/19	5.65	11.49	--	--	--	--	--	--	--	--	--
	07/14/19	6.18	10.96	170[x]	<250	<100	<0.8	<1	<1	<3	0.00655	2.07
	01/21/20	5.13	12.01	100 [x]	<250	<100	<0.8	<1	<1	<3	0.00655	1.27
Site-Specific Cleanup Levels for Groundwater[6]				**500**	**500**	**800**	**0.8**	**80**	**275**	**1,600**	**0.012**[7]	**5/21.3**[8]

NOTES:

Laboratory analyses performed by Friedman & Bruya, Inc. of Seattle, Washington.

Analytical data presented in micrograms per liter.

TOC elevation (feet) relative to mean sea level as measured by D.R. Strong Consulting Engineers on August 18, 2017.

Bold italics indicates the concentration exceeds the cleanup level.

[1]Analyzed by Ecology Method NWTPH-Dx.

[2]Analyzed by Ecology Method NWTPH-Gx.

[3]Analyzed by EPA Method 8021B.

[4]Analyzed by EPA Method 8071D SIM or 8270E SIM.

[5]Analyzed by EPA Method 200.8 or 6020B.

[6]Site-Specific Cleanup Levels established in Cleanup Plan Addendum, North Lot Property, Seattle, Washington, prepared by Landau Associates on September 18, 2013.

[7]The total concentration that all cPAHs meet using the toxicity equivalency methodology in WAC 173-340-708(8). Italics indicate a toxicity equivalency based entirely or in part upon non-detectable concentrations of PAHs. For those PAHS that have not been detected at the site and are below detection limits, a value of 0 was used for the TEF calculations (Ecology guidance document: *Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs) . Implementation Memorandum #10,* April 20, 2015.). Data were corrected relative to the recommendations provided in the memorandum, and the table was updated in May 2018. If concentrations of detected benzo(a)pyrene and/or TEFs of additional detected PAHs exceed the cleanup level, results are presented in ***bold italic*** font.

[8]A cleanup level of 5 µg/L was agreed upon by Ecology for the western portion of the site (MW-19 and MW-20). A background concentration of 21.3 µg/L will be used as the cleanup level for the eastern portion of the site (MW-16D, MW-18D, MW-21, and MW-22).

Laboratory Note:

[x]The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

< = less than

-- = not analyzed, not sampled

µg/L = micrograms per liter

cPAH = carinogenic polycyclic aromatic hydrocarbon

DRPH = diesel-range petroleum hydrocarbons

Ecology = Washington State Department of Ecology

EPA = US Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MSL = mean sea level

ORPH = oil-range petroleum hydrocarbons

PAH = polycyclic aromatic hydrocarbon

TEF = toxicity equivalency factor

TOC = top of casing

WAC = Washington Administrative Code