GeoEngineers

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June 10, 2016

Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Attention: Tamara Cardona

Subject: Acorn Development LLC Redevelopment Projects and VCP Submittal_06.10.16
Block 19 Response Letter
2101 7th Avenue, Seattle, Washington
VCP Project No.: NW3011
File No. 20434-001-00

INTRODUCTION

On behalf of Acorn Development LLC (Acorn), a subsidiary of Amazon.com, GeoEngineers, Inc. (GeoEngineers) is providing this letter in response to the Washington State Department of Ecology's (Ecology's) letter dated February 18, 2016 regarding the Block 19 (also referred to as 7th and Lenora) project site located at 2101 7th Avenue, Seattle, Washington 98119. The project site is bounded by Blanchard Street to the northwest, 7th Avenue to the northeast, Lenora Street to the southeast and 6th Avenue to the southwest. The subject property is currently an active construction site being developed with a 37-story office tower, an additional supporting building and six levels of underground parking.

As part of a very large urban redevelopment project, all soil was removed from property line to property line, down to approximately 90 feet below ground surface at the Block 19 property. Small, shallow (less than 15 feet deep) remedial actions to remove contaminated soil were completed as a subset of the mass construction excavation. The small remedial actions were based on a site characterization completed prior to the start of construction. Confirmation soil sampling was conducted on Block 19 at the small remedial action locations in order to document the successful contaminant removal and to facilitate a smooth transition to property redevelopment between 2012 and 2014. Based on the data:

- All contaminated soil was successfully excavated from the property.
- Groundwater was not encountered in the excavation until below 80 feet below ground surface (bgs); there is about 70 feet of separation where contaminated soil used to be located and the water table and contaminants of concern were not detected in regional groundwater tested on adjacent blocks. It is warranted to conclude that there is no groundwater contamination at this property.
- There was no evidence of volatile soil gas, nor a vapor intrusion risk.

Therefore, the remedial actions completed as a subset of mass construction excavation on Block 19 meet the criteria for Model Remedy 1 in Ecology Publication No. 15-09-043, "Model Remedies for Sites with Petroleum Contaminated Soils," dated September 2015. As described in Ecology's publication, Model Remedy 1 is applicable in, "situations where complete removal of the contaminated soil will take place and Method A Soil Cleanup Levels for Unrestricted Property Use have been selected. Following excavation, confirmation testing must be performed to document that the applicable Method A cleanup levels found in Table 740-1 of WAC 173-340-900 have been met at the point of compliance, such that no environmental covenants are necessary." As described in the Block 19 Cleanup Action report dated June 10, 2015 and summarized in this letter, the subject property meets the criteria for Model Remedy 1 because all contaminated soil was removed from within the Block 19 property, confirmation soil sampling was conducted to document the successful removal of the contaminated soil and an environmental covenant is not necessary at the property.

The subject property was enrolled in Ecology's Voluntary Cleanup Program (VCP) in August 2015 with a request for a No Further Action (NFA) determination. Ecology responded with a request for additional information, which is outlined in their letter dated February 18, 2016 (included in Appendix A of this letter).

The purpose of this letter is to provide the additional information requested in Ecology's February 18, 2016 letter. Following Ecology's review of the additional information provided in this letter we request a NFA determination for the cleanup actions completed on Block 19.

PROJECT DESCRIPTION AND CURRENT SITE CONDITIONS

In 2014, construction began within the Block 19 property boundary to build a 37-story office tower, an additional supporting building and six levels of underground parking. Construction activities began with the installation of soldier piles within the rights-of-way around the entire perimeter of the property which allowed mass excavation of all soil contained within the soldier piles to a depth of approximately 90 feet below the ground surface. Photo 1 (taken on May 15, 2014) shows the beginning stages of the shoring installation and initial mass excavation activities beginning in the central portion of the property. All fill and native soil, from ground surface to approximately 90 feet below the ground surface was removed during mass excavation activities. Groundwater was not encountered during construction excavation down to 80 feet below the ground surface. Dewatering activities were not necessary above approximately 80 feet below the ground surface and minimal dewatering was required between approximately 80 feet and the base of the construction excavation at approximately 90 feet below the ground surface.

PHOTO 1: Block 19 on May 15, 2014 aerial photo with Blanchard Street to the right and Lenora Street on the left. Soldier piles being installed around the entire perimeter of the property and mass excavation beginning in the central portion of the project site.

PHOTO 2: Block 19 on September 23, 2014 standing on Blanchard Street looking southeast toward Lenora Street. Soldier piles around the entire perimeter of the property, mass excavation complete and parking garage foundation being constructed.

A Phase II Environmental Site Assessment (ESA) was conducted in 2012 prior to beginning mass excavation activities. Contaminants of concern were not identified in fill or native soil based on chemical testing of 19 soil samples in 12 explorations across the property. During mass excavation, physical indications of contaminated fill soil was encountered at shallow depths (less than 15 feet bgs) in six isolated areas (referred to as Areas A through F) on the Block 19 project site. As the areas were encountered, soil samples were obtained from each of the six areas to characterize the soil for off-site disposal, remedial excavations were completed to remove soil represented by the characterization soil samples and confirmation soil samples were obtained at the limits of the remedial excavations (as described in our Cleanup Action Report for Block 19 dated June 10, 2015). These actions taken during construction represented "maintenance-level" management of fill soil.

Following the completion of the mass excavation to remove all fill and native soil from the subject property to a depth of approximately 90 feet below the ground surface, construction began on the 37-story office building and associated support building, as shown in Photo 3, which was taken on April 15, 2016. The subject property is currently an active construction site. The large office tower and spheres are scheduled to open in September 2016.

PHOTO 3: Block 19 on April 15, 2016 looking north. Large office tower with underground parking and glass spheres nearing completion.

RESPONSE TO ECOLOGY COMMENTS

Terrestrial Ecological Evaluation (TEE)

As shown in the Terrestrial Ecological Evaluation (TEE) Site Plan, Figure 1, Block 19 is located approximately 800 feet to the south of Denny Park. Based on this, the subject property qualifies for an exclusion from the TEE based on the Washington Administrative Code (WAC) 173-340-7491(1)(c)(i), which states, "there is less than 1.5 acres of contiguous undeveloped land on the site or within 500 feet of any area of the site." The completed Terrestrial Ecological Evaluation Form is included in Appendix B.

Site Characterization, Confirmation Soil Sampling, Groundwater Evaluation and Cleanup Action Selected

As limited areas of shallow fill soil with physical indications of contamination were discovered on the Block 19 project site during mass excavation activities, soil samples were obtained to characterize the soil and confirm that the contaminated soil had been successfully removed from the property.

Additional soil sampling is not warranted because of the following reasons:

- Characterization of the subject property was completed during the 2012 Phase II ESA. Metals, volatile organic compounds (VOCs) and PAHs were tested in 19 soil samples obtained from 12 borings during the Phase II ESA and contaminants either were not detected or were detected at concentrations similar to background conditions. Seven of the explorations were completed within approximately 50 feet laterally in each direction of remedial excavation areas C and E, indicating that the contamination discovered in shallow fill soil at these locations is isolated.
- A total of 1,545 tons of contaminated soil was removed from the six isolated areas of contamination, which includes the diesel- and heavy oil-range contaminated fill soil represented by PCS-4, SP-2 and PCS-2.
- Samples PCS-4 and SP-2 were obtained from remedial excavation area C and PCS-2 was obtained from remedial excavation area E. Confirmation soil samples UST-1-6-13.0, UST-1-4-12.0 (in remedial excavation area C) and EX-10-5.0 (remedial excavation area E) were obtained beneath each of the characterization samples (within approximately 2 to 5 feet). These confirmation samples are representative of soil conditions at the extent of the remedial excavation directly below samples PCS-4, SP-2 and PCS-2, respectively. The approximate locations of confirmation soil samples obtained from Areas C and E are shown in figures 2 and 3, respectively.
- The contaminated soil was excavated and removed from the site for permitted disposal, as demonstrated by the laboratory chemical analytical results of the characterization soil samples obtained in 2012 and the confirmation soil samples obtained in native soil beneath the property, as described in the bullets above.

Not only is additional soil sampling not warranted, it is also not feasible because all soil was excavated down to approximately 90 feet below the ground surface and the newly constructed office tower and deep parking garage have been constructed within the Block 19 property boundary, which includes the areas requested by Ecology - directly below discrete characterization soil samples PCS-4, SP-2 and PCS-2.

Although groundwater samples were not obtained from the actual subject property, they were obtained from the blocks to the east and south. No groundwater contamination was observed in the deep regional aquifer located 90 feet or more beneath these properties. Additionally the soil contamination observed on the Block 19 property was in shallow fill soil, not representative of a point source release, and did not migrate significantly downward based on observations and chemical testing during mass excavation. Additionally, geologic factors of the transition from loose fill to very dense native soil would have prevented leachability of contamination downward toward the groundwater table. Even if contaminants did leach, the chemicals discovered at Block 19 (diesel- and heavy oil-range petroleum hydrocarbons and PAHs) commonly have limited mobility, and would have had to migrate more than 80 feet through dense native soil to impact groundwater. These mechanisms and possibility for groundwater contamination seem highly unlikely considering the geology, contaminants observed and massive amount of soil that was removed at

this site for construction. To emphasize this point, possible groundwater impacts from soil contamination at the subject property are extremely unlikely, based on the following:

- Perched groundwater was not encountered at Block 19 at volumes of significance and a groundwater monitoring well installed on the property to a depth of approximately 75 feet below the ground surface was not sampled because there was no water present in the well. As shown on boring logs for B19-6 and B19-7, perched groundwater was encountered in small volumes at the time of drilling, however the perched water was discontinuous across the property, not of sufficient volume to sample, and was located a significant distance (approximately 80 feet) from the small remedial excavation areas.
- Dewatering was not conducted during the mass excavation of soil until the excavation reached depths deeper than 80 feet below the ground surface (well after all of the contaminated fill soil had been removed from the property) and groundwater was not encountered in our deepest boring, which was approximately 76 feet below the ground surface.
- Confirmation soil samples obtained at the base and sidewalls of the remedial excavations indicate that the small, isolated areas of soil contamination identified at the Block 19 property were successfully excavated and removed from the property.
- The maximum depth of soil contamination encountered was approximately 13 feet below the ground surface, with more than 67 feet of vertical separation from the top of groundwater encountered during mass excavation.

As described above, the subject property is an active construction site and all soil within the property boundary was removed from the subject property to a depth of approximately 90 feet below the ground surface to accommodate the construction of six levels of underground parking. Based on this site use, the only feasible cleanup action was to remove the soil contamination encountered during construction at the property by excavation with disposal at a permitted disposal facility. This cleanup action meets the substantive requirements of MTCA and the 'minimum requirements for cleanup actions" (WAC 173-340-360(2)) because it:

1. Could be completed within a relatively short period of time;
2. Meets threshold requirements described by MTCA (e.g. protects human health and the environment, complies with the cleanup standards, complies with state and federal laws and provides for compliance monitoring);
3. Is expected to be more effective than other available methods in achieving concentrations that are protective of human health and the environment;
4. Is permanent; and,
5. Considers public concerns.

We appreciate your review of the additional information provided in this letter and we request a NFA determination for the cleanup actions completed on Block 19. If there are questions regarding this submittal please contact us.

Sincerely,
GeoEngineers, Inc.

Jessica Smith, LG
Senior Project Manager

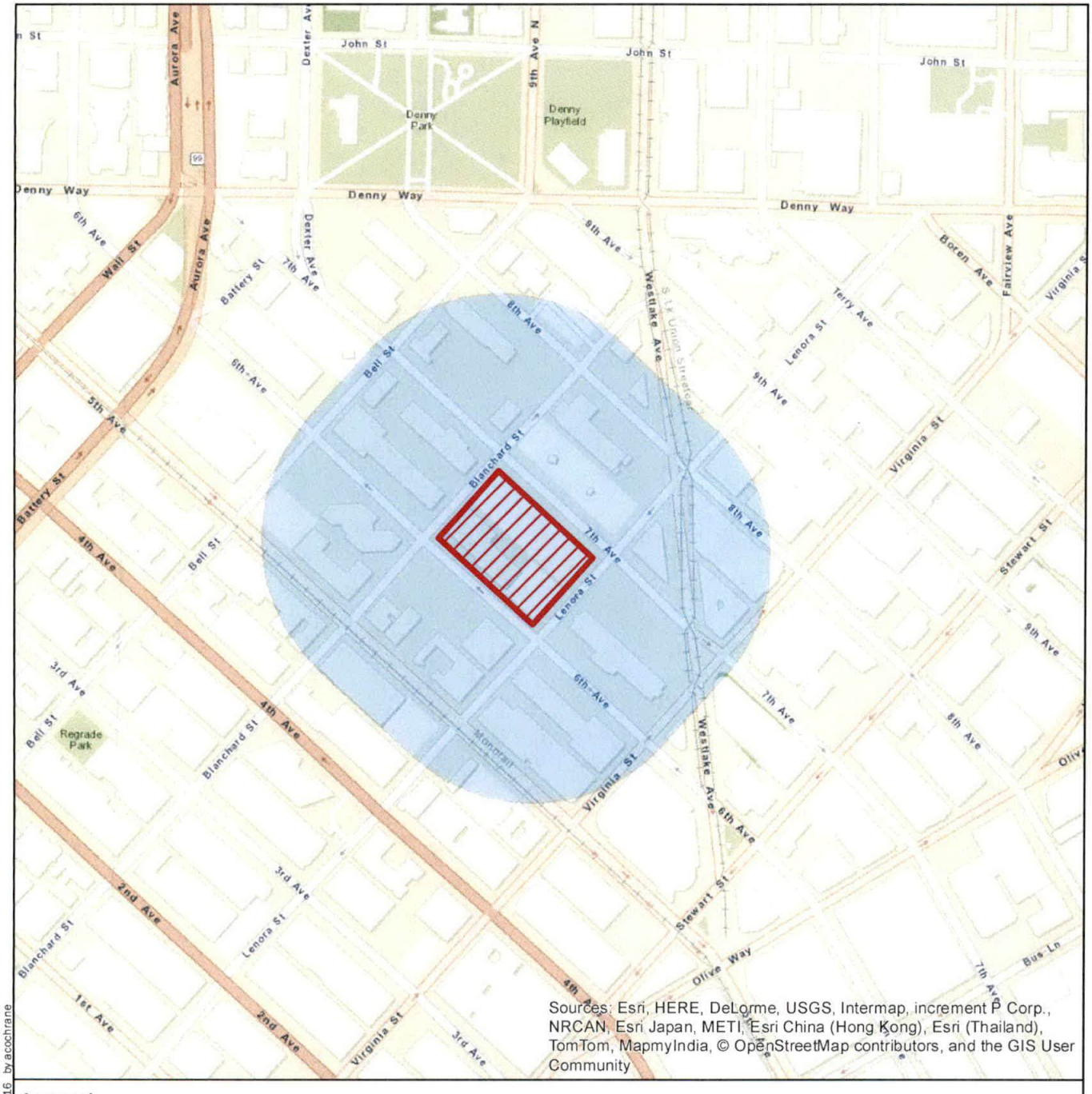
David A. Cook, LG, CPG
Principal

JAS:DAC:lw

Attachments:
Figure 1. Terrestrial Ecological Evaluation Site Plan
Figure 2. Remedial Excavation Area C
Figure 3. Remedial Excavation Area E
Appendix A. February 18, 2016 Letter from Ecology
Appendix B. Terrestrial Ecological Evaluation Form

cc: John Schoettler, Acorn Development LLC
Todd Leber, Seneca Group

GeoEngineers



Legend

Block 19

Terrestrial Ecological Evaluation Boundary
500-feet Buffer

500 0 500
Feet

N
W E
S

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source:

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

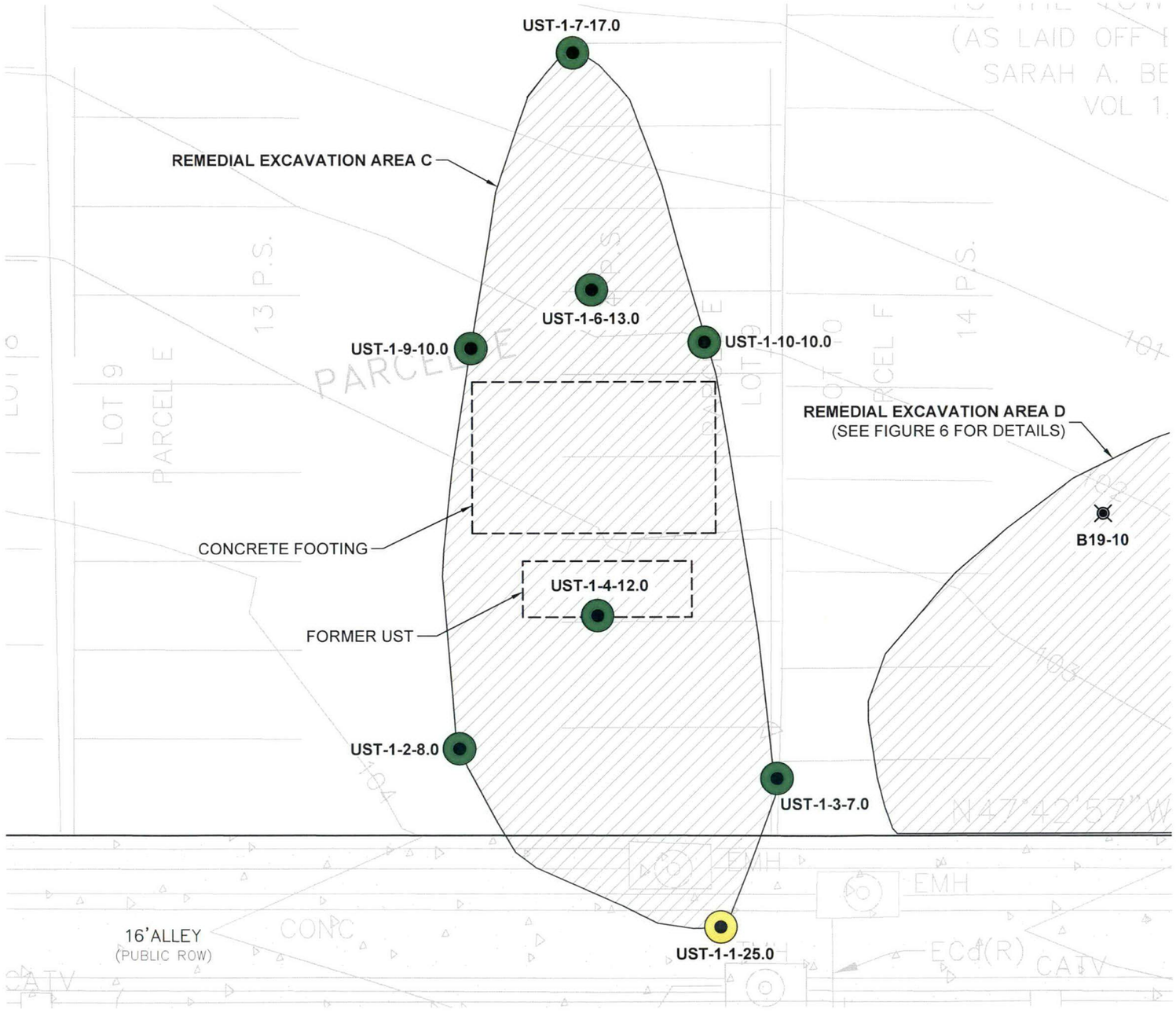
Terrestrial Ecological Evaluation Site Plan

Rufus 2.0 Development
Seattle, Washington

GeoEngineers

Figure 1

P:\20\20434001\GIS\20434001_B14_TEE.mxd Date Exported: 05/02/16 by acochrane



Legend

- Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.
- **B19-10** — Direct-Push Borings Completed in April 2012
- **UST-1-1-25.0** — Confirmation Soil Sample - Obtained in 2014; Approximate Depth Below Ground Surface; Sample ID
- Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern were not detected

10 0 10
FEET

Notes

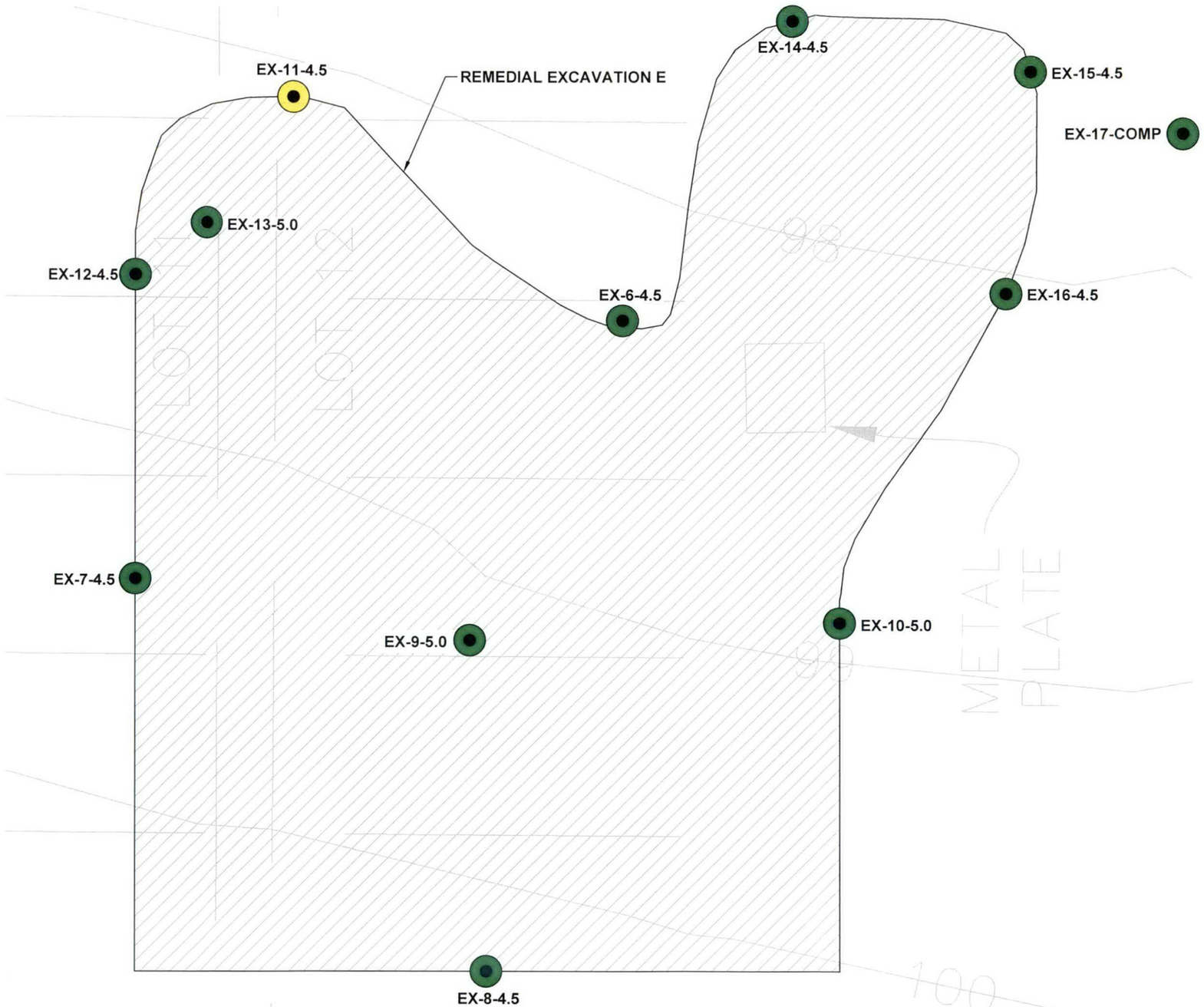
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

Remedial Excavation Area C

Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers | Figure 2



Legend

Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.

EX-7-4.5 ●

Confirmation Soil Sample - Obtained in 2014
Approximate Depth Below Ground Surface
Sample ID

Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.

Contaminants of concern were not detected

5 0 5
FEET

Notes

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Chemical analytical data pending for EX-11-4.5, EX-12-4.5, and EX-13-5.0.

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

Remedial Excavation Area E

Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers

Figure 3

P:\20\20434001\CAD\19 Remedial Excavation Figures\20434001-19_F02-F03 RE Excavation Site Plans.dwg TAB:F03 Date Exported: 05/18/16 - 11:27 by cvanslyke

APPENDIX A
February 18, 2016 Letter from Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

February 18, 2016

Mr. Todd Leber
Acorn Development, LLC
1191 Second Avenue, Suite 1500
Seattle, WA 98101

Re: Opinion Pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the Following Hazardous Waste Site:

- **Site Name:** Block 19 7th and Lenora
- **Site Address:** 2101 7th Avenue, Seattle, WA 98119
- **Facility/Site No.:** 17031
- **VCP Project No.:** NW3011
- **Cleanup Site ID No.:** 12918

Dear Mr. Leber:

Thank you for submitting documents regarding your proposed remedial action for the Block 19 7th and Lenora facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release at the Site:

- Total petroleum hydrocarbons in the diesel range (TPH-D) and the oil range (TPH-O) and polycyclic aromatic hydrocarbons (PAHs) into soil.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial action(s):

1. GeoEngineers, Cleanup Action Report, June 10, 2015.

2. GeoEngineers, Construction Contingency Plan, Soil and Groundwater Management, March 4, 2014.

3. GeoEngineers, Phase II Environmental Site Assessment, June 7, 2012.

4. GeoEngineers, Phase I Environmental Site Assessment, June 7, 2012.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an email to: nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following release:

- TPH-D, TPH-O, and PAHs into soil.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site, Ecology has determined:**

- Your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. Soil samples were collected after discovery of contaminated areas during construction activities at the Property and were collected and analyzed for TPH-D and TPH-O. Several of the samples contained concentrations above the MTCA Method A cleanup levels for TPH-D and/or TPH-O, however, only limited areas were sampled for PAHs. None of the samples were analyzed for volatile organic compounds (VOCs) or metals even though some of the exceedances were in an area known to have a history of vehicle maintenance activities.

- Confirmation samples obtained during post-excavation activities, were not collected below the areas where contamination was previously identified (PCS-4, SP-2, and PCS-2). Therefore, complete removal of impacted soil cannot be confirmed at this time.

Additional information describing current status of the Site, including all Site activities such as final depth of soil excavation, additional contaminated soil removal, dewatering activities during Property redevelopment, and any other information that may be pertinent to the Site characterization and cleanup, should be submitted.

- No perched ground water was encountered during excavation activities. However, during exploration prior to Site cleanup, perched ground water was identified on the Property at two locations (borings B19-6 and B19-7) at depths between 10 and 17.5 feet bgs. While these locations are approximately 80 feet to the north and northwest of where the cleanup activities were completed, it is an indication that perched water may be present on the Property. Explorations closer to the contaminated areas did not reveal the presence of perched ground water. These explorations were as shallow as 10 feet below ground surface (bgs) and as deep as 76 feet bgs. Based on the incomplete vertical delineation of soil impacts described above, it is not known if the soil contamination possibly extended into ground water, therefore Ecology cannot determine if the ground water investigation is complete. Additional information, as described above and including cross sections of the final excavated areas, are needed to further understand the current status of the Site.

- The Site does not qualify for the Terrestrial Ecological Evaluation (TEE) exclusion selected per WAC 173-340-7491 as Denny Park is located approximately 300 feet north of the Site and it is considered to be more than 1.5 contiguous acres of undeveloped land. Please include the completed TEE form in future submissions.

- Excavation of contaminated soil is the cleanup action selected for the Site. While this is a permanent cleanup action, due to the incomplete Site characterization and confirmation sampling, Ecology cannot determine if this cleanup action meets the substantive requirements of MTCA.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions about this opinion, please contact me by phone at (425) 649-7058 or by e-mail at tamara.cardona-marek@ecy.wa.gov.

Sincerely,

T Cardona

Tamara Cardona, PhD
Toxics Cleanup Program

Enclosures: A – Description and Diagrams of the Site

cc: Jessica Smith, GeoEngineers
Sonia Fernandez, Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined as total petroleum hydrocarbons in the diesel range (TPH-D), total petroleum hydrocarbons in the oil range (TPH-O) and polycyclic aromatic hydrocarbons (PAHs) in soil at 2101 7th Avenue in Seattle, WA (Property). The Property corresponds to contiguous King County tax parcel numbers 0660000220, - 215, -205, -195, -176, -165 which are 0.45, 0.15, 0.30, 0.30, 0.30, and 0.30 acres in size, respectively, for a total of 1.8 acres.

Area and Property Description: The Property is currently part of the Amazon Campus located west of Lake Union in a mixed use area of residential, commercial and retail land uses. An apartment building is located to the southwest, an office building and an apartment building to the northwest, other buildings that are part of the Amazon Campus are located to the northeast and southeast, an apartment building is located directly to the east, and an office building to the south. The former existing buildings on the Property were demolished in 2014. The Property is currently undergoing redevelopment as a 38-story office building with seven levels of underground parking.

Property History and Current Use: Block 19 was originally developed with approximately 18 residential buildings in 1905 which were all demolished in the 1930s. In a 1936 aerial photograph, the western half of the block appears vacant. Historical documents suggest auto sales and repair businesses and possibly a fuel station may have been located on the Property in the late 1930s. Between 1940 and 1980, residential and office buildings were constructed and demolished. Prior to the 2014 demolition, the Property was occupied by office space, a theater and surface parking. The Property is currently undergoing redevelopment as part of the Amazon campus.

Sources of Contamination: Specific sources of TPH-D, TPH-O, and PAHs contamination throughout the Property are not all known. Of the six areas of contamination identified, only two can be associated to prior uses of the Property including a residential heating oil underground storage tank and an oil water separator. Although no contamination was identified during a Phase II investigation, contamination was found during excavation for the current building.

Physiographic Setting: The Property is located in the Puget Sound Lowland Physiographic Province, a north-south trending structural and topographic depression that is bordered on its west side by the Olympic Mountains, and to the east by the Cascade Mountain foothills. The Puget Sound Lowland is underlain by Tertiary volcanic and sedimentary bedrock, and has been filled to the present day land surface with Pleistocene glacial and non-glacial sediments.

In the early 1900's, soil was moved into the area where the Property is located from what was formerly Denny Hill during the Denny Regrade project. The Denny Regrade consisted of the removal of a steep hill (Denny Hill) north of downtown Seattle as part of a large construction project in the early part of the 20th century. Explorations and geologic analysis indicate that a thickness of between one to 22 feet of fill was placed on the Property. The Property currently lies at an elevation of approximately 100 feet above mean sea level.

Surface/Storm Water System: The surface water body closest to the Site is Puget Sound approximately 0.6 miles southwest (and west) of the Property. Lake Union is located 0.6 miles

north of the Property. Surface water runoff in the area is captured in municipal storm drains and transported to the nearest surface water drainage.

Ecological Setting: The surface of the Property will be covered by a building following redevelopment. Denny Park, a 4.6 acre city park, is located approximately 300 feet north of the Property. Other surrounding areas are covered with asphalt or buildings.

Geology: Soils encountered at the Site consist of fill consisting of loose to dense silty sand and silt with variable gravel and cobble content and occasional brick, charcoal or wood debris. The fill overlies recent deposits (stiff to very stiff silt and clay with occasional sand interbeds and variable gravel content or medium dense to dense sand with variable silt and gravel content) and competent glacially-consolidated soils to depths of up to 75 feet below ground surface (bgs), the maximum depth explored.

Ground Water: Discontinuous zones of shallow perched water were encountered in isolated soil boring locations B19-6 and B19-7 during the Phase II investigation. The perched ground water occurred at depths of 10 to 17.5 feet bgs in the northeast and northwest portions of the Property. Based on topographic contours, shallow ground water is inferred to flow to the west/southwest. Regional ground water at the Property was observed at depths of 70 feet bgs in soil boring B19-5.

Water Supply: The Property's drinking water is supplied by Seattle Public Utilities (SPU). Water provided by SPU is obtained from the Cedar and Tolt River watersheds.

Release and Extent of Soil and Ground Water Contamination: Phase I and Phase II Environmental Site Assessments were completed in 2012 at the Site prior to Property redevelopment. While some potential Property uses suggested contamination may be present on the Property, 11 soil boring explorations advanced to a maximum depth of 76 feet bgs found no contamination. At a minimum, one soil sample was collected from each boring at depths varying from 2.5 to 70 feet bgs., most samples were collected at depths between five and 15 feet bgs. All soil samples were analyzed for TPH-G, TPH-D, TPH-O, and metals. A selected group of samples was also analyzed for volatile organic compounds and PAHs. None of the samples analyzed had detections above the MTCA Method A Cleanup levels. Ground water was encountered in a shallow zone in two of the 11 soil borings but it was not sampled during the Phase II investigation.

In 2014, Property redevelopment was under way. While no details were provided regarding the excavation activities, a Construction Contingency Plan was in place and was being followed in case contaminated soil was encountered. Petroleum- and PAH-contaminated soil was encountered in six localized areas (areas A, B, C, D, E, and F). In addition, a heating oil UST was also found associated with area C. A total of six discrete or composite soil samples were collected from areas B, D, E, and F to characterize the soil for disposal. Samples were analyzed for TPH-G, TPH-D, TPH-O. Two soil samples from area D were also analyzed for PAHs. TPH-D and TPH-O were detected in all samples. Areas D, E, and F had TPH-D and/or TPH-O sampling results as high as 10,000 and 3,530 milligrams per kilogram (mg/kg) respectively, exceeding their MTCA Method A cleanup levels. One of the PAHs samples from area D also had results (131 micrograms per kilogram) exceeding the MTCA Method A cleanup level.

Following removal of the heating oil UST in area C, three discrete soil samples were obtained from soil adjacent to the UST. Highest concentrations detected in these samples were 20,700 mg/kg for TPH-D and 3,320 mg/kg for TPH-O.

Soil in all impacted areas was removed and confirmation samples collected. Approximately 996 tons of contaminated soil were removed from area C, adjacent to the UST. Eight confirmation samples were collected from the limits of the UST excavation. No detections above the MTCA Method A cleanup levels were present. Samples from area C were not collected below previous detections but from a location between five and 10 feet away.

The depth and size of the remaining five excavated areas was not reported. A total of 23 confirmation soil samples were collected. Confirmation samples in all areas were analyzed for TPH-D and TPH-O. Only samples from area D were analyzed for PAHs. None of the samples had detections exceeding Method A cleanup levels. Confirmation samples from area E were not collected below the previous detection (PCS-2) but from a location approximately five feet away.

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps, Street Maps 2013

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

2,000 0 2,000
Feet

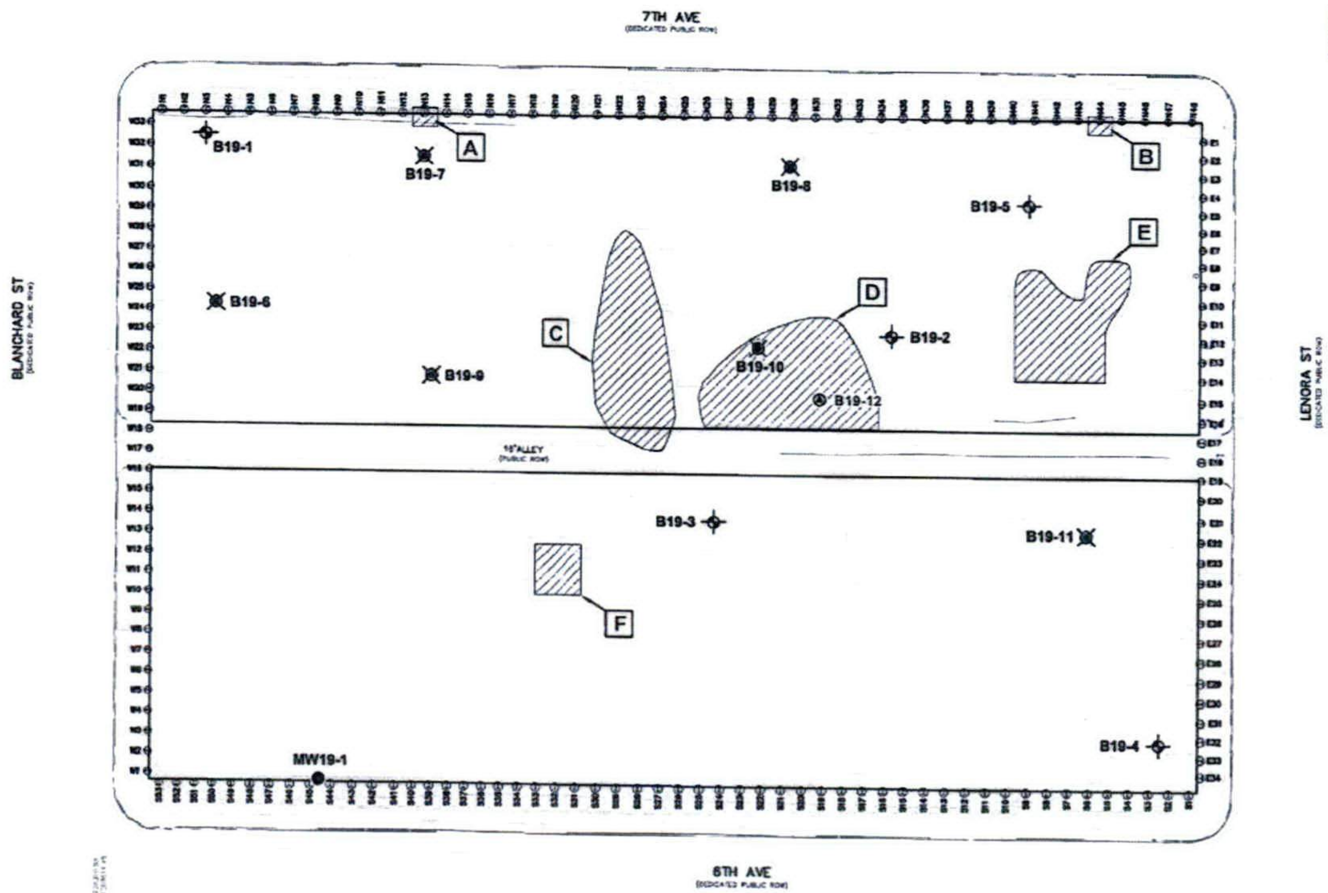
Vicinity Map
Block 19

Rufus 2.0
Seattle, Washington

GeoEngineers

Figure 1

Path: \\sea\projects\20\20434001\GIS\20434001 00 Vicinity.mxd
Map Revised: 12 November 2014 caonzales
Office: SEA



Legend

A Remedial Excavation Areas (A-E). Excavation areas identified by field screening and soil sampling. See figures 2-6 for characterization and confirmation soil sample locations.

A: Petroleum impacted soil near soldier pile N13
B: Petroleum impacted soil near soldier pile N44
C: Former underground storage tank and remedial excavation of petroleum contaminated soil
D: PAH contaminated soil from tremie pipe
E: Petroleum contaminated soil
F: Former oil-water separator and petroleum contaminated soil

B19-12 — Lead Flight Auger Test Boring Completed in Feburary 2014

MW14-3 — Shallow Monitoring Wells Completed in April 2012

B14-6 — Direct-Push Borings Completed in April 2012

B14-1 — Hollow-stem Auger Borings Completed in February 2012

MW19-1 — Monitoring Well Completed in February 2012

40 0 40
FEET

Notes

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Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings, Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

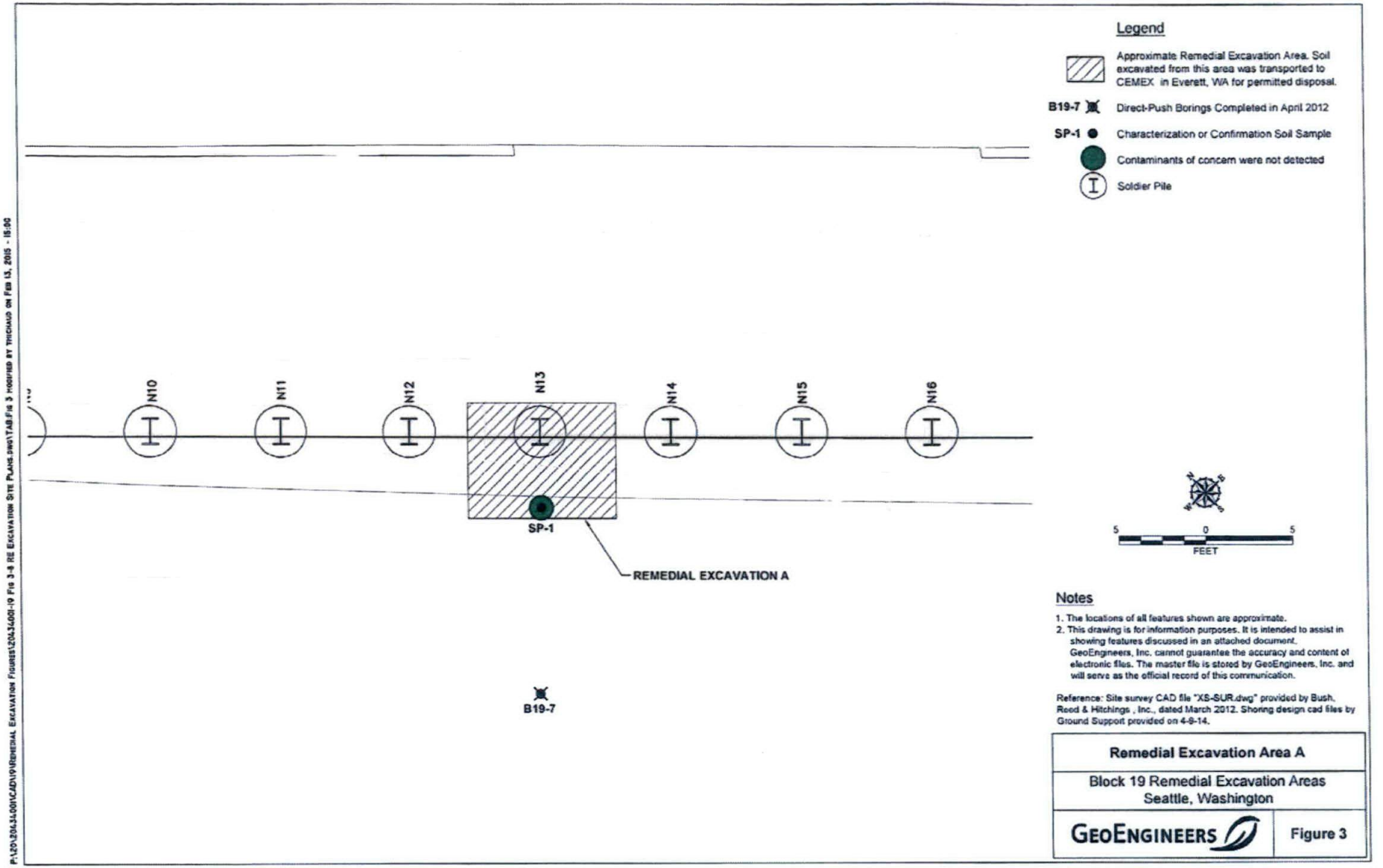
Block 19 Remedial Excavation Areas

Block 19 Remedial Excavation Areas
Seattle, Washington

GEOENGINEERS

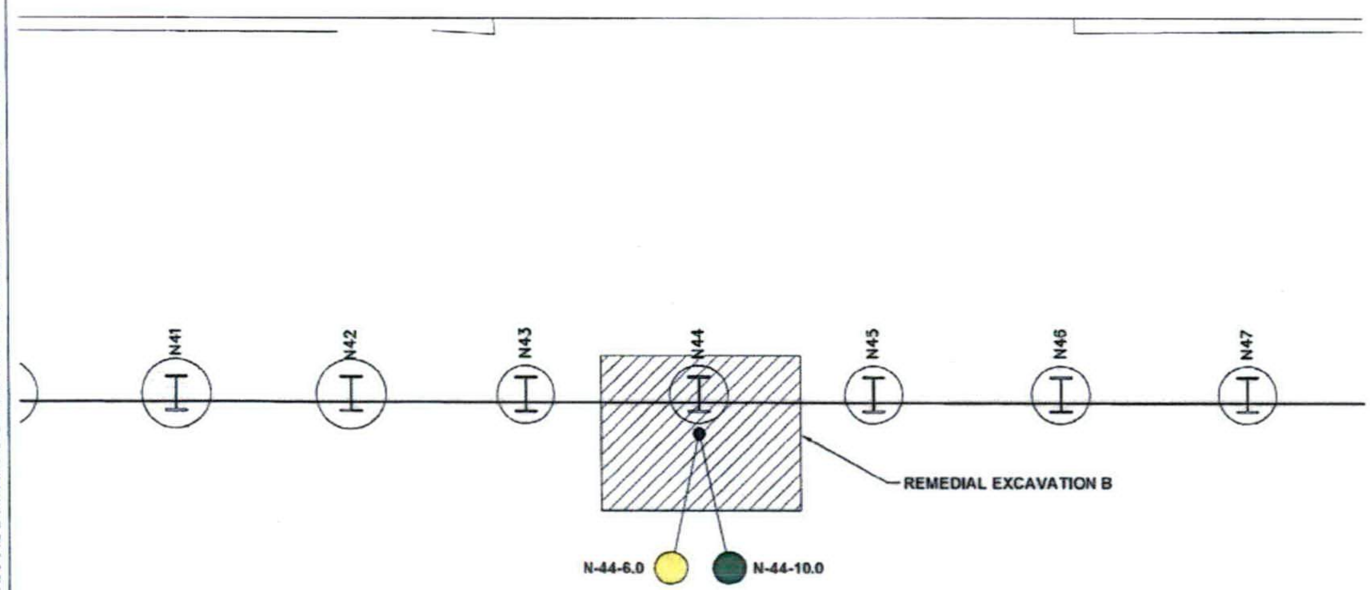
Figure 2

P:\20\2043400\CAD\19\Remedial Excavation Figures\2043400-19 Fig 2 RE Excavation Site Plan.dwg\TAB:Fig 1 Modified by THICHAUD on Feb 13, 2015 - 15:30



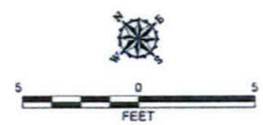
P:\120\204\34\001\CAD\19\Remedial Excavation Figures\204340019 Fig 3-4 RE Excavation Site Plans.dwg\TAB-Fig 3 modified by thichard on Feb 13, 2015 - 15:50

P:\20\20434001\CAD\19\Remedial Excavation Figures\20434001-19 Fig 3-8 RE Excavation Site Plans.dwg\TAB:Fig 4 modified by THICHAUD on Feb 13, 2015 - 15:08



Legend

- Approximate Remedial Excavation Area. Soil excavated from this area was transported to CEMEX in Everett, WA for permitted disposal.
- N-44-6.0 ● Characterization or Confirmation Soil Sample - Obtained in 2014; Approximate Depth Below Ground Surface; Sample ID
- Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern were not detected
- Soldier Pile



Notes

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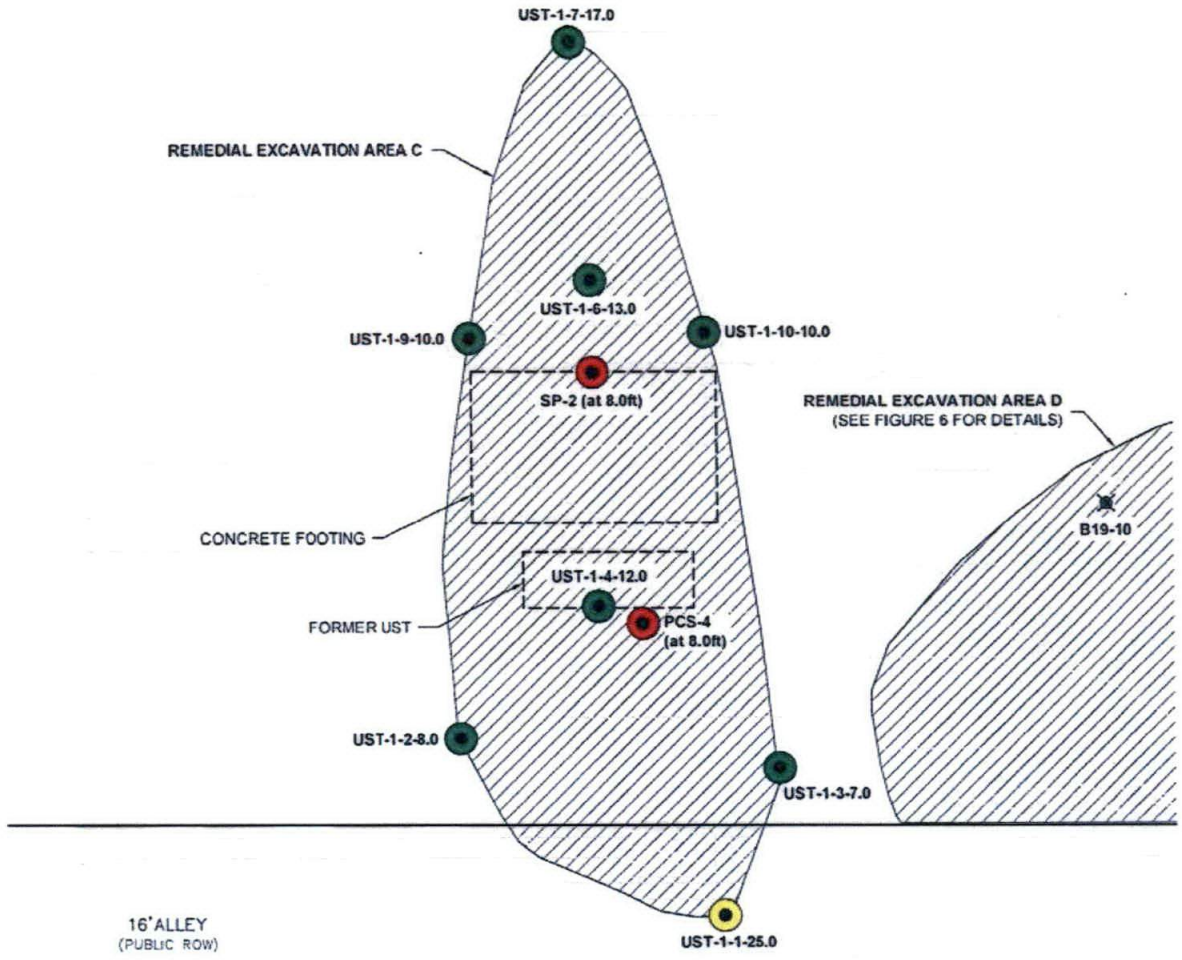
Remedial Excavation Area B

Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers | **Figure 4**



Legend

- Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.
- B19-10 — Direct-Push Borings Completed in April 2012
- UST-1-1-25.0 — Characterization or Confirmation Soil Sample - Obtained in 2014
  - Approximate Depth Below Ground Surface
  - Sample ID
- Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern were not detected

10 0 10
FEET

Notes

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Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

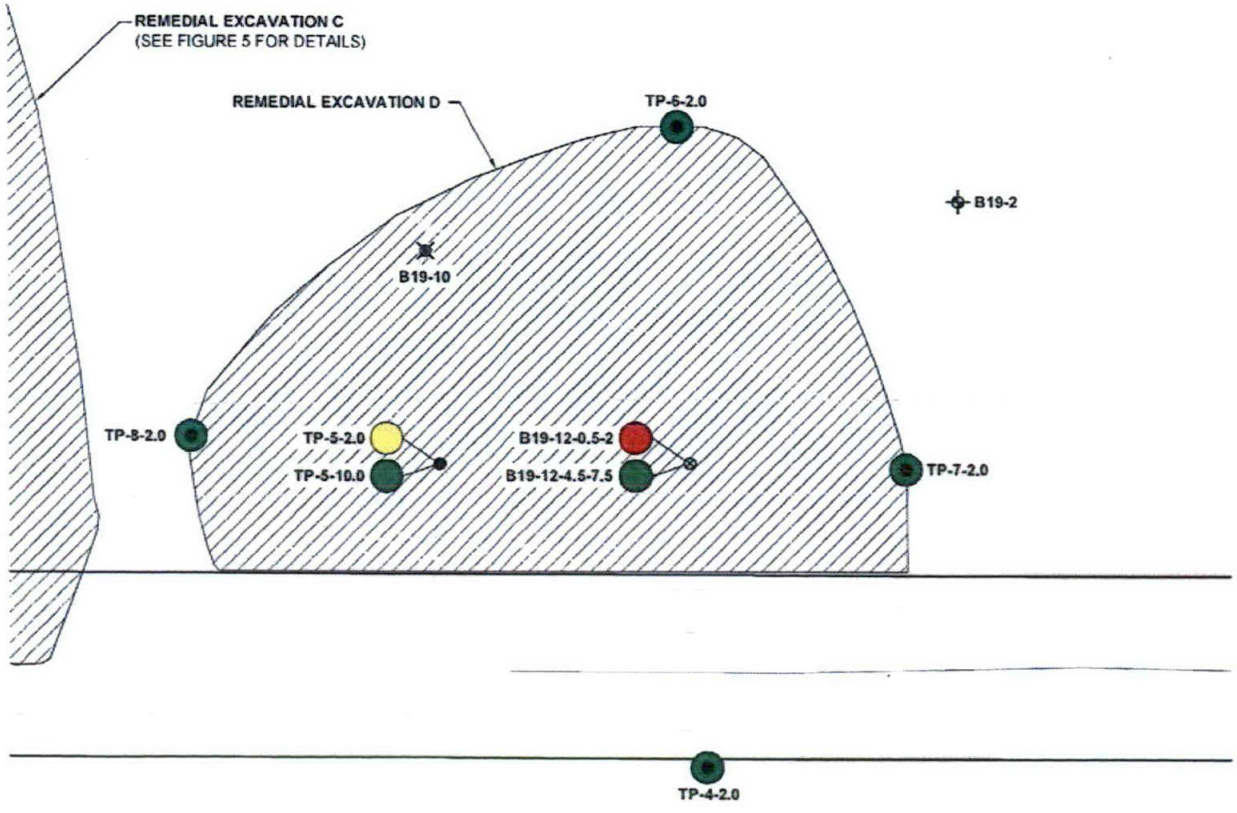
Remedial Excavation Area C

Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers

Figure 5

P:\20\20434.001\CAD\F\Remedial Excavation Figures\20434.001-F9 Fig 3-9 RE Excavation Site Plans.dwg\TAB:Fig 5 modified by thichaud on Feb 13, 2015 - 15:51



Legend

- Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.
- B19-12 — Lead Flight Auger Test Boring Completed by Sellen Construction in Feburary 2014
- B19-10 — Direct-Push Borings Completed in April 2012
- B19-2 — Hollow-stem Auger Borings Completed in February 2012
- TP-5-10.0 — Characterization or Confirmation Soil Sample - Obtained in 2014
  - Approximate Depth Below Ground Surface
  - Sample ID
- Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
- Contaminants of concern were not detected

10 0 10
FEET

Notes

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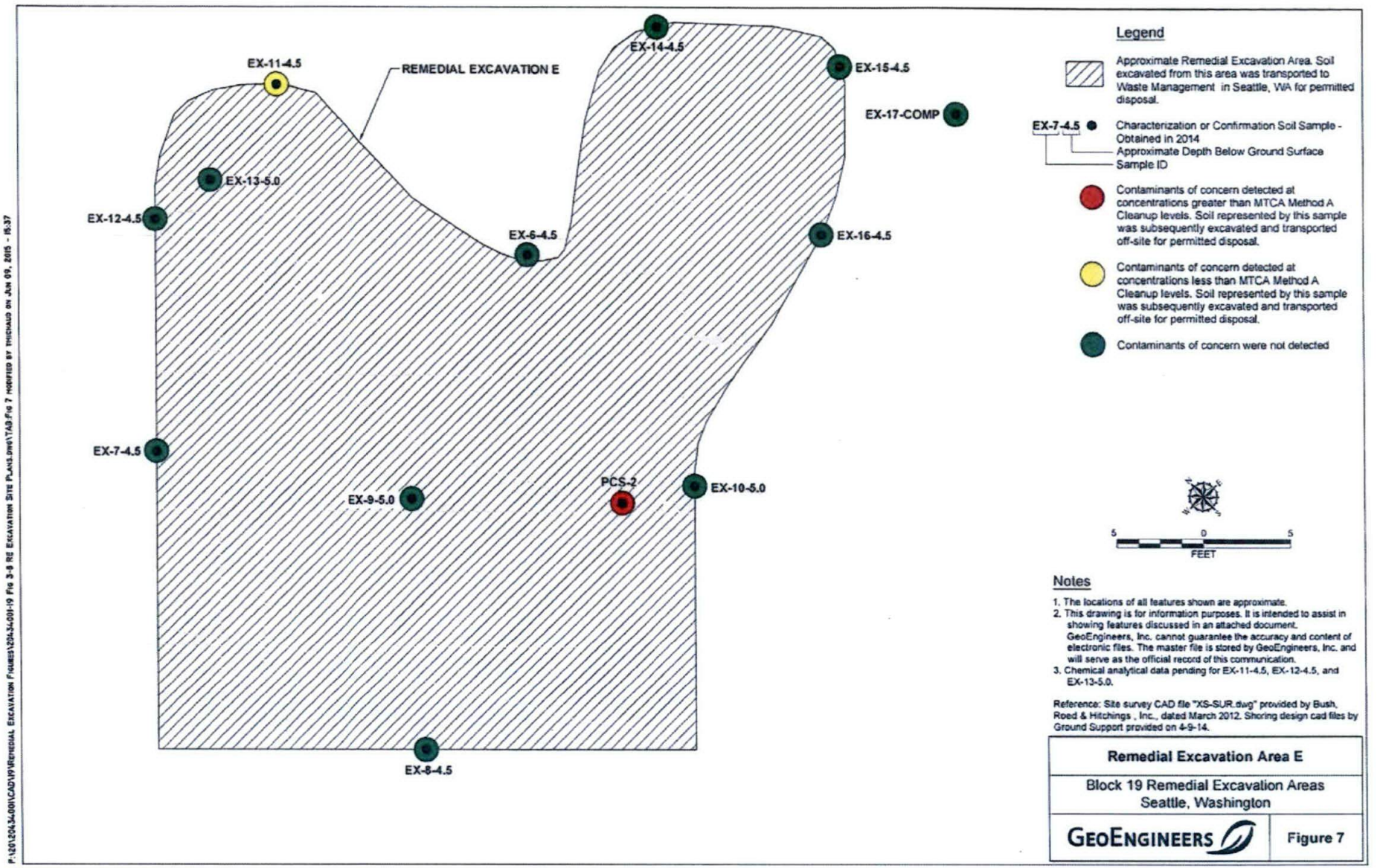
Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-8-14.

Remedial Excavation Area D

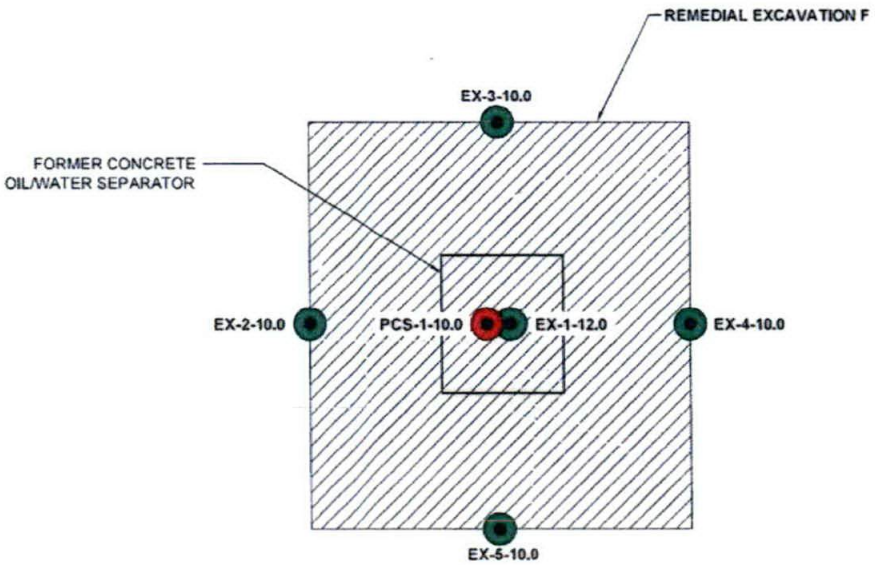
Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers

Figure 6



P:\120\12043400\CAD\VP\Remedial Excavation Figures\12043400-19 Fig 3-9 RE Excavation Site Plans.dwg\TAB:Fig 7 modified by thichaus on Jan 09, 2015 - 15:37



Legend

Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.

EX-1-12.0 ● Characterization or Confirmation Soil Sample - Obtained in 2014
- Approximate Depth Below Ground Surface
- Sample ID

Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.

Contaminants of concern were not detected

5 0 5
FEET

Notes

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Remedial Excavation Area F

Block 19 Remedial Excavation Areas
Seattle, Washington

GeoEngineers

Figure 8

P:\20\20434001\CAD\19\REMEDIAL EXCAVATION FIGURES\20434001-19 FIG 3-8 RE EXCAVATION SITE PLANS.DWG\TAB:FIG 8 MODIFIED BY THOMAS ON FEB 13, 2015 - 15:54

APPENDIX B
Terrestrial Ecological Evaluation Form

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Block 19 7th and Lenora	
Facility/Site Address: 2101 7th Avenue, Seattle, WA 98119	
Facility/Site No: 17031	VCP Project No.: NW3011

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Jessica A. Smith			Title: Senior Geologist
Organization: GeoEngineers, Inc.			
Mailing address: 8410 154th Avenue NE			
City: Redmond		State: WA	Zip code: 98052
Phone: 425-861-6000	Fax: 425-861-6050	E-mail: jasmith@geoengineers.com	

ECY 090-300 (07/2015) To request ADA accommodation including materials in a format for the visually impaired, call Ecology Toxic Cleanup Program 360-407-7170. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☒ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

± "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

"Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use? *Check all that apply. See* WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295