Construction Contingency Plan, Soil and Groundwater Management

Rufus 2.0 Development
Block 19 Denny Triangle
Seattle, Washington

for
Acorn Development, LLC

March 4, 2014

GeoEngineers

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Rufus 2.0 Development
Block 19, Denny Triangle
Seattle, Washington

File No. 20434-001-16

March 4, 2014

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1.0 INTRODUCTION

This report presents the Construction Contingency Plan and soil and groundwater handling recommendations to be utilized during the redevelopment construction activities of Block 19 in the Denny Triangle Neighborhood in downtown Seattle, Washington.

Block 19 is comprised of six adjoining tax parcels (066000-0165, 0176, 0195, 0205, 0215 and 0220) and is bounded by Blanchard Street to the West, 7th Avenue to the North, Lenora Street to the East and 6th Avenue to the South. The Block 19 redevelopment project is the second phase of a three-office-tower redevelopment project that will span three contiguous city blocks. The redevelopment project is known as the Rufus 2.0 redevelopment. Within Block 19, excavation to depths of approximately 85 feet below the ground surface will be completed to construct an underground parking garage. Environmental explorations have been completed to evaluate soil and groundwater conditions prior to starting excavation and redevelopment activities. The soil and groundwater testing results form the basis for this Construction Contingency Plan and are being used to coordinate the management of contaminated, impacted and "clean" soil (as defined and described in Sections 3.0 and 4.0 of this document).

Block 19 is referred to herein as the "Subject Property." The Subject Property and the other two blocks of the Rufus 2.0 redevelopment are shown relative to surrounding physical features on the Vicinity Map, Figure 1. The Block 19 layout, including historic exploration locations, is shown on the Soil Management Category figure (Figure 2).

2.0 BACKGROUND

Several environmental studies were completed on Block 19 to evaluate potential sources of contamination and to characterize soil and groundwater beneath the subject property. Historic uses of the property are summarized in our Phase I Environmental Site Assessment (ESA) report dated June 7, 2012 and the 2012 Phase II ESA activities are summarized in our Phase II ESA report dated June 7, 2012. The Phase I ESA identified the possibility of the presence of petroleum hydrocarbons and metals in soil related to historic site use. Based on the results of the Phase I and II ESA studies, contaminants of concern were not detected on Block 19 and fill and native soil on Block 19 was classified as "clean," as shown on Figure 2 and described in Section 3.0 below.

3.0 SOIL CATEGORIES AND DEFINITIONS

3.1. Contaminated Soil

For the purposes of soil handling for the Rufus 2.0 Block 19 construction activities, soils are considered "contaminated" and not acceptable for unrestricted end-use if:

- Contaminant concentrations for any analyte that exceed state cleanup levels (MTCA).
- Metals are detected above natural background levels for the Puget Sound region (Ecology, 1994). In the cases of barium, selenium and silver where no natural background

level has been established for the Puget Sound, soil are considered "contaminated" if the detected concentrations are greater than the MTCA Method A or B Cleanup Level for Unrestricted Land Use.

- Physical evidence of contamination (sheen, odor, staining) is observed.

No contaminated soil was identified during the Phase II ESA explorations.

3.2. Impacted Soil

Soils are considered "impacted" and should be transported to a controlled and permitted landfill, or owner-approved fill location if:

- Contaminant concentrations for any analyte that exceed laboratory detection limits but are less than state cleanup levels (MTCA).
- Metals are detected above natural background levels for the Puget Sound region (Ecology, 1994). In the cases of barium, selenium and silver where no natural background level has been established for the Puget Sound, soil are considered "contaminated" if the detected concentrations are greater than the MTCA Method A or B Cleanup Level for Unrestricted Land Use.
- Physical evidence of contamination (sheen, odor, staining) is observed.

No impacted soil was identified during the Phase II ESA explorations.

3.3. Clean Soil

Soil is considered "clean" and acceptable for unrestricted end-use if:

- Contaminant concentrations are not detected for any analyte other than metals.
- Metals are detected less than the natural background levels for the Puget Sound region (Ecology, 1994). In the cases of barium, selenium and silver where no natural background level has been established for the Puget Sound, soil are considered "clean" if the detected concentrations are less than the MTCA Method A or B Cleanup Level for Unrestricted Land Use.
- Physical evidence of contamination (sheen, odor, staining, etc.) is not observed.

Based on the results of the Phase II ESA testing, fill and native soil on Block 19 was classified as clean soil (the green shading shown on Figure 2).

Definitions of contaminant, contaminated soil and natural background concentrations are provided in Washington Administrative Code (WAC) 173-350-100 for solid waste purposes.

4.0 SOIL EXCAVATION AND HANDLING RECOMMENDATIONS

Based on the results of the previous subsurface investigations completed at the Subject Property, contaminants of potential concern were not detected or were detected at concentrations that represent background conditions. Based on this, soil on Block 19 was categorized as Clean soil (as shown on Figure 2) and there are no special handling or end-use requirements for this soil.

5.0 DISCOVERY OF UNEXPECTED POTENTIALLY CONTAMINATED/IMPACTED SOIL OR USTS

Although contaminants of concern were not identified during the Phase II ESA completed on Block 19, it is possible that potentially impacted/contaminated soil may be encountered during construction activities at the site at locations that were not previously tested. GeoEngineers environmental representative will not be on site to field screen soil during mass excavation on Block 19. Therefore, it is the Contractor's responsibility to identify potentially contaminated/impacted soil as described below. Excavated soil from any location will be considered to be petroleum-contaminated/impacted if it exhibits one or more of the following physical characteristics:

- Staining;
- Petroleum hydrocarbon odors;
- A moderate or heavy sheen when placed in contact with water; and/or,
- Significant concentrations of organic vapors detected using headspace field screening methods.

If soil exhibits one or more of the above characteristics or if an undocumented underground storage tank (UST) is discovered, the Contractor should notify GeoEngineers, Seneca and/or Sellen immediately for characterization prior to removal and/or disposal. Upon discovery of potentially contaminated/impacted soil, the Contractor should refer to this guide for contact information of people to notify as well as information regarding the location, type and actions taken to address the potentially contaminated soil. Below are the categories for unexpected potentially contaminated/impacted soil.

5.1. Impacted Soil

If impacted soil is identified during construction through supplemental testing, (contaminants of potential concern detected at concentrations **less** than the MTCA Method A or B cleanup levels), special handling and end use considerations are needed for fill soil to be excavated within the yellow category. The special handling and disposal should include the following:

- **Soil Excavation and Segregation:** As impacted soil is excavated, the Contractor should segregate this soil from soil excavated from the clean (green) category to prevent co-mingling of the contaminant impacted soil and the clean soil (that is not contaminated). Attention to soil segregation vertically is also important. Overlying fill soil should be segregated from underlying native soil. GeoEngineers will be on site to assist in soil segregation activities.
- **Temporary Stockpiling of Impacted Soil:** Impacted soil can either be loaded directly into trucks for off-site permitted disposal, or can be stockpiled on the Subject Property pending end use/disposal. If the soil is to be temporarily stockpiled, the impacted soil must be placed on and covered with plastic sheeting at all times.
- **Loading and Transportation:** The Contractor should load the segregated impacted material into trucks and transport the material to the selected treatment/disposal facility. A tracking procedure must be developed and approved by GeoEngineers prior to starting excavation activities.

- **Disposal/Recycling Facilities:** Excavated impacted soil can be transported to the selected disposal facility after approval is granted by the facility. Potential disposal/recycling facilities include the following:
    - CEMEX in Everett, Washington.
    - Rabanco's Roosevelt Landfill located in Klickitat County, Washington. A transfer station for this landfill is located in Seattle, Washington.
    - Waste Management's Columbia Ridge Landfill in Arlington, Oregon. A transfer station for this landfill is located in Seattle, Washington.

  GeoEngineers is available to discuss the pros and cons of each of these disposal facilities. GeoEngineers has already assisted by providing soil profile applications to each of the disposal facilities.
- **Off-Site Reuse Alternative to Disposal/Recycling:** Excavated fill soil can be transported to a receiving facility that is prequalified by the owner (Acorn Development, LLC) and has been provided with the chemical analytical results and agrees (in writing) to accept the fill soil as-is with an acknowledgement that the soil may contain contaminants at low concentrations, less than MTCA cleanup levels.
- **Confirmation Soil Sampling:** It is possible that confirmation soil sampling will be necessary to confirm the successful removal of the impacted soil.

5.2. Contaminated Soil

If contaminated soil is identified during construction through supplemental testing, (contaminants of concern were detected at concentrations greater than the MTCA cleanup levels), special handling and end use considerations are needed for soil to be excavated. The special handling and disposal should include the following:

- **USTs:** Based on the results of our Phase I ESA, no USTs are known to be located within Block 19. Any unexpected USTs discovered must be removed in accordance with the "Underground Storage Tank Regulations" (WAC 173-360) and the Washington State Department of Ecology (Ecology) "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" dated April, 2003. A Washington State Site Assessment certified representative of GeoEngineers must be present on the subject property during the removal of the USTs.
- **Soil Excavation and Segregation:** If contaminated soil or USTs are encountered, a representative of GeoEngineers will need to be called to the site during the excavation of soil to field screen soil and obtain confirmation soil samples. Field screening methods are described in Appendix A. As contaminated soil is excavated, the Contractor should segregate this soil from soil excavated from the remaining categories to prevent mingling of the contaminated soil and the clean soil (that is not contaminated).
- **Temporary Stockpiling of Contaminated Soil:** Contaminated soil can either be loaded directly into trucks for off-site permitted disposal, or can be stockpiled on the Subject Property pending end use/disposal. If the soil is to be temporarily stockpiled, the contaminated soil must be placed on and covered with plastic sheeting at all times.

- **Loading and Transportation:** The Contractor should load the segregated impacted material into trucks and transport the material to the selected treatment/disposal facility. A tracking procedure must be developed and approved by GeoEngineers prior to starting excavation activities.
- **Disposal/Recycling Facilities:** Excavated soil can be transported to the selected disposal facility after approval is granted by the facility. Potential disposal/recycling facilities include the following:
    - CEMEX in Everett, Washington.
    - Rabanco's Roosevelt Landfill located in Klickitat County, Washington. A transfer station for this landfill is located in Seattle, Washington.
    - Waste Management's Columbia Ridge Landfill in Arlington, Oregon. A transfer station for this landfill is located in Seattle, Washington.

  GeoEngineers is available to discuss the pros and cons of each of these disposal facilities. GeoEngineers has already assisted by providing soil profile applications to each of the disposal facilities.
- **Confirmation Soil Sampling:** Confirmation soil samples will need to be obtained following the removal of contaminated soil. Confirmation soil samples will be submitted for chemical analysis for contaminants of concern on a rush (2-day) turnaround.

6.0 CONSTRUCTION DEWATERING EFFLUENT HANDLING

Static groundwater is present beneath the Subject Property at approximately 65 to 70 feet below the ground surface and discontinuous zones of shallow perched water are likely present in isolated locations beneath Block 19.

It is important for the contractor to prepare a groundwater handling plan with appropriate containment, testing and treatment methodologies. The contractor also is responsible for obtaining necessary discharge authorizations from local agencies. GeoEngineers can assist in providing information related to groundwater sampling and testing completed on the subject properties and/or support the contractor in the sampling and testing of groundwater for the presence of hazardous chemicals in order to comply with discharge permits.

7.0 DISCOVERY OF UNEXPECTED CONTAMINATED/IMPACTED GROUNDWATER

GeoEngineers will not be on site evaluate groundwater conditions during excavation activities. Therefore, it is the Contractor's responsibility to identify potentially contaminated/impacted groundwater as described below:

- Petroleum hydrocarbon odors;
- A moderate or heavy sheen when placed in contact with water; and/or,
- Turbidity that may result in a discharge exceedance.

8.0 CONTACT INFORMATION

If unexpected potentially contaminated soil is discovered during construction activities, the Contractor should notify Seneca Real Estate Group and GeoEngineers as soon as possible. The table below presents those contacts as well as other relevant project contacts who may be contacted as back up.

RELEVANT PROJECT CONTACTS

Name	Title	Cell Phone	Office Phone	Email
Seneca Real Estate Group				
Bart Heath	Project Manager	206.390.2783	206.808.7879	barth@senecagroup.com
GeoEngineers				
Dave Cook	Environmental Principal	206.372.7637	206.239.3229	dcook@geoengineers.com
Matt Smith	Geotechnical Principal	206.963.0862	425.861.6072	msmith@geoengineers.com
Jessica Smith	Environmental Project Manager	206.423.8289	425.861.6070	jasmith@geoengineers.com
Lindsay Flangas	Geotechnical Project Manager	206.251.6441	425.861.6058	lflangas@geoengineers.com
Sellen Construction Company				
Brian Duke	Project Superintendent	206.571.2628	–	Brian.duke@sellen.com
Gary Rager	Field Superintendent	206.255.1877	–	gary.rager@sellen.com

9.0 LIMITATIONS

We have prepared this report for the exclusive use of the Acorn Development, LLC and their authorized agents. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix B, titled "Report Limitations and Guidelines for Use," for additional information pertaining to use of this report.

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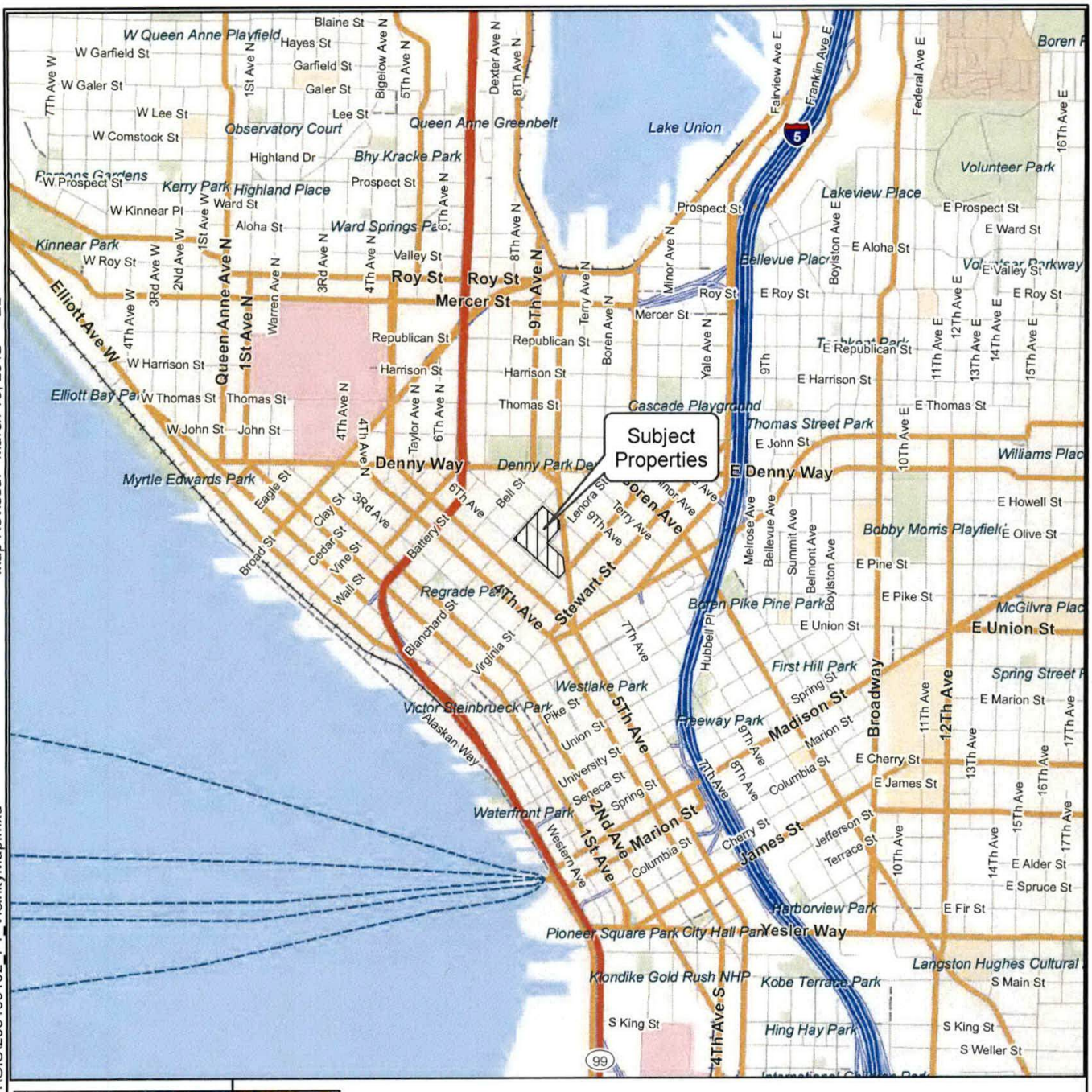


Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, 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 2005

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

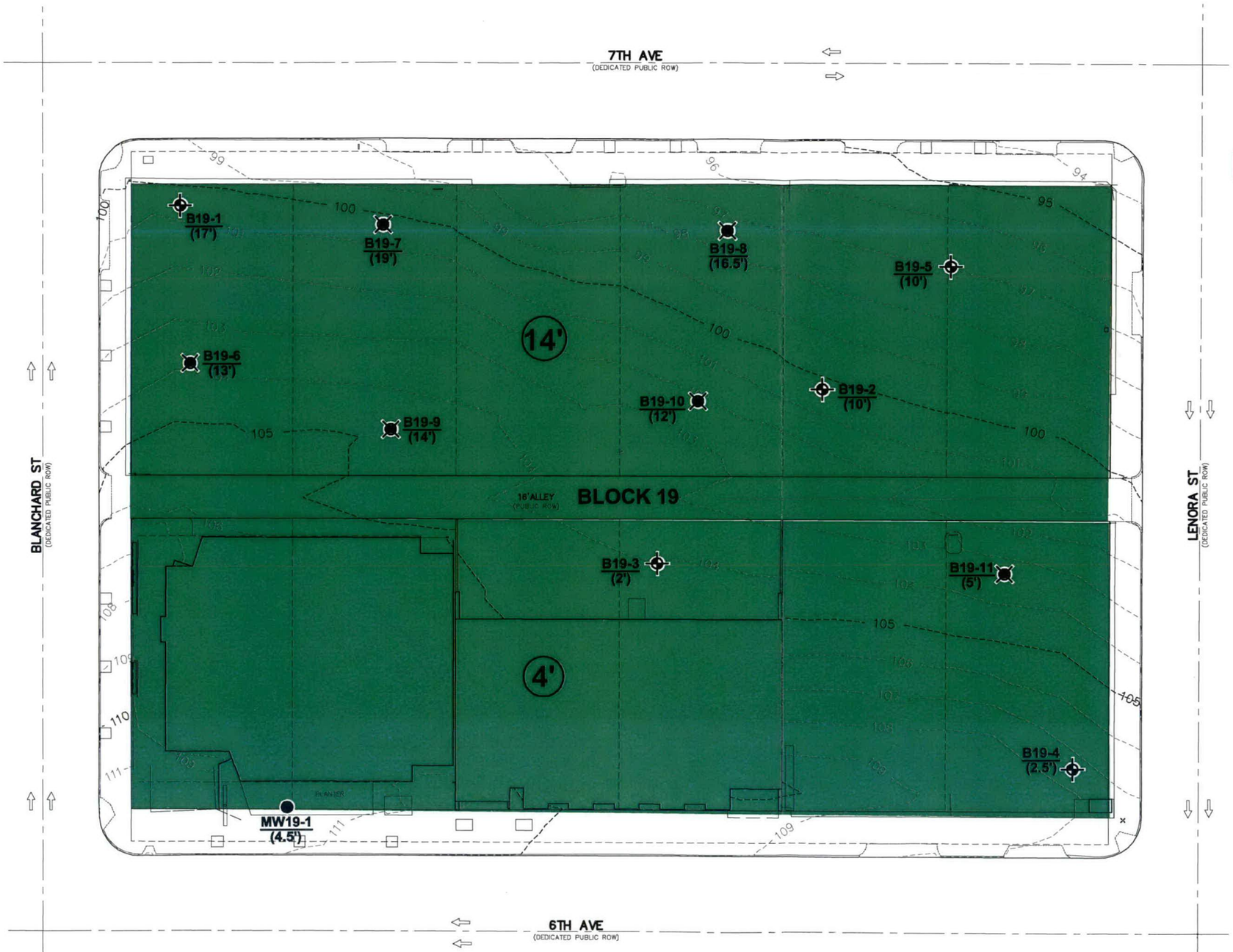
Vicinity Map
Blocks 14, 19 and 20

Rufus 2.0
Seattle, Washington

GeoEngineers

Figure 1

Office: Redmond Path: \\red\projects\2012034100\GIS\203400102_F1_VicinityMap.mxd Map Revised: March 15, 2012 EL



Legend

- **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
- **(2')** — Approximate Fill Thickness Observed in the Boring
- Contaminants of concern either not detected or detected similar to natural background concentrations in fill soil. Soil excavated from these locations may be disposed of as "clean" soil, at the discretion of the owner.
- **4'** — Average Fill Thickness (feet) Estimated to Calculate Soil Disposal Costs

80 0 80
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. Aerial photo from Aerial Express, 2009.

Soil Management Category

Rufus 2.0 Development
Seattle, Washington

GeoEngineers | **Figure 2**

P:\20\20434001\CAD\16\20434016-01 Soil Management Category.dwg\TAB:Fig 2 Modified by THichaud on Feb 21, 2014 - 9:21

APPENDIX A
Field Procedures

APPENDIX A
FIELD PROCEDURES

Field Screening of Soil Samples

Soil samples obtained from the explorations will be evaluated for evidence of possible contamination using field screening techniques. Field screening results can be used as a general guideline to delineate areas of possible petroleum- or volatile organic compound (VOC)-related contamination in soils. In addition, screening results are often used as a basis for selecting soil samples for chemical analysis. The screening methods employed included: (1) visual examination, (2) water sheen testing, and (3) headspace vapor testing using a photoionization detector (PID).

Visual screening consists of observing the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Sheen screening is a more sensitive screening method that can be effective in detecting petroleum-based products.

Water sheen testing involves placing soil in water and observing the water surface for signs of sheen. Sheens are classified as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
Moderate Sheen (MS)	Light to heavy sheen, may have some color/iridescence; spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic bag. Air is captured in the bag, and the bag is shaken to expose the soil to the air trapped in the bag. The probe of the PID is inserted into the bag. The PID measures the concentration of photoionizable gases and vapors in the sample bag headspace. The PID is designed to quantify photoionizable gases and vapors up to 2,000 parts per million (ppm), and is calibrated with isobutylene. A lower threshold of significance of 1 ppm is used in application.

Field screening results are site- and exploration- specific. The results may vary with temperature, moisture content, soil lithology, organic content and type of contaminant. The presence or absence of sheen does not necessarily confirm the presence or absence of contaminants in a sample.

APPENDIX B
Report Limitations and Guidelines for Use

APPENDIX B
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This Appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Acorn Development, LLC their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Acorn Development, LLC should rely on this plan without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report Is Based on a Unique Set of Project-Specific Factors

This report applies to Block 19 in the Denny Triangle neighborhood of Seattle, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

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[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

If important changes are made after the date of this remedial action plan, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain after Completion of Remedial Activities

Remediation activity completed in a portion of a site cannot wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical, Geologic and Geoenvironmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If the client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.