Block 20 Environmental Construction Contingency Plan, Soil and Groundwater Management

Rufus 2.0 Development
Block 20 Denny Triangle
Seattle, Washington 98101

for

Acorn Development, LLC

November 13, 2014

GeoEngineers
Earth Science + Technology

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GeoEngineers

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Block 20 Environmental Construction Contingency Plan

Soil and Groundwater Management

Rufus 2.0 Development
Block 20, Denny Triangle
Seattle, Washington 98101

File No. 20434-001-23

November 13, 2014

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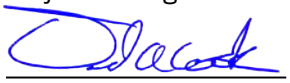

David A. Cook, LG, CPG
Principal

JAS:DAC:lw

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APPENDICES

1.0 INTRODUCTION

This report presents an the Environmental Construction Contingency Plan and soil and groundwater handling recommendations to be utilized during construction activities of the Block 20 redevelopment project in the Denny Triangle Neighborhood of downtown Seattle, Washington.

Block 20 is comprised of four adjoining tax parcels (06000-0270, 0275, 0280 and 0320) and is bounded by Blanchard Street to the north, 8th Avenue to the east, Lenora Street to the south and 7th Avenue to the west. The Block 20 redevelopment project is one phase of a multi-office-tower redevelopment project that will span three contiguous city blocks. The redevelopment project is known as the Rufus 2.0 redevelopment. Development activities for the three blocks consists of demolition of the existing buildings, vacation of utilities located in the alleys, and construction of a multi-building office complex with three 36-story towers and underground parking beneath each block. Hazardous building materials studies have been completed by Pacific Rim Environmental, a subconsultant to GeoEngineers. The hazardous building materials surveys and abatement specifications are reported separately. Within Block 20, excavation to depths of approximately 85 feet below the ground surface will be completed to construct an underground parking garage. Environmental studies 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 Environmental Construction Contingency Plan and are being used to coordinate the management of "contaminated" and "impacted" soil (as defined and described in Sections 4.0 and 5.0 of this document).

This block 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 20 layout, including historic exploration locations, is shown on Figures 2 through 4.

2.0 BACKGROUND

Several environmental studies were completed on Block 20 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 soil and groundwater sampling activities are summarized in our Phase II ESA report dated June 7, 2012 and are shown on Figure 2, Historic Sources of Potential Contamination. The environmental studies completed at the Subject Property have documented the presence of petroleum hydrocarbons and metals in soil related to historic site use, as shown graphically in Figure 3, Soil Chemical Analytical Results. Based on the results of the Phase I and II ESA studies, Block 20 was divided into soil characterization categories shown on Figure 4 and described in Section 3.0 below.

Several potential sources of contamination were identified on and adjacent to the Subject Property, including:

- former auto repair facilities (a Toyota dealership currently occupies Block 20),
- former gasoline service stations (a former gasoline station occupied part of Block 20),
- dry cleaners (off-property),

- evidence of former or current USTs (on and off property),
- oil burners (on and off property), and
- undocumented imported fill soil (on and off property).

We understand based on historic research that in the early 1900s, soil was placed onto the Subject Property from what was formerly Denny Hill during the Denny Hill Cut and Regrade activities. Additionally, it is likely that imported soil from an unknown source was also placed on portions of Block 20.

The following was identified during our Phase II ESA exploration activities performed at Block 20:

- **Phase II ESA Soil Chemical Analytical Results**

Contaminants of Concern in Soil: petroleum hydrocarbons, metals (lead only) and cPAHs.

February 2012 Findings (three borings and three wells; three locations impacted): Heavy oil-range petroleum hydrocarbons, lead and carcinogenic PAHs were detected both at concentrations greater than and less than the corresponding MTCA Method A cleanup levels in soil samples obtained from borings MW20-1 (in fill soil from ground surface to approximately 5 feet bgs), B20-3 (in fill and native soil between approximately ground surface and 22.5 feet bgs) and MW20-3 (in fill soil between ground surface and approximately 5 feet bgs). Additionally, gasoline- and diesel-range petroleum hydrocarbons, VOCs and non-carcinogenic PAHs were detected in the same borings at the same depth intervals at concentrations less than the MTCA Method A cleanup levels. Because of the significant amount of fill on this block and the identified contamination in soil, follow-up explorations were warranted across this block.

April 2012 Findings (18 borings, three became wells; eight locations impacted): Lead was detected at a concentration greater than the MTCA Method A cleanup level in B20-13-7.5 (obtained in fill soil at approximately 7.5 feet bgs). Carcinogenic PAHs were detected at concentrations greater than the MTCA Method A cleanup level in MW20-1-5.0 (obtained in fill soil at approximately 5 feet bgs), and in boring B20-8 (in fill soil between ground surface and approximately 15 feet bgs). Additionally, diesel- and heavy-oil range hydrocarbons and/or PAHs were detected at concentrations less than the MTCA Method A cleanup levels in soil samples obtained from fill soil in MW20-1, MW20-4, MW20-5, B20-4, B20-6, B20-8 and B20-13.

Contaminated soil was not identified in borings completed in the Blanchard Street and 8th Avenue immediately adjacent to Block 20. Our research indicates that there are three USTs located on the eastern portion of Block 20 (at the location of the current Toyota auto sales and service center). We understand that one of the USTs on Block 20 has been removed, but the other two are likely still in place.

- **Groundwater Chemical Analytical Results:**

Contaminants of Concern in Groundwater: None

February 2012 Findings (Deep, Regional Groundwater Wells): Monitoring wells MW20-1 through MW20-3 were completed in February 2012 to monitor the regional groundwater located at approximately elevation 20 (approximately 65-85 feet below the Subject Properties). Contaminants of concern (metals, PAHs, PCBs, VOCs and petroleum hydrocarbons) were not detected in groundwater samples obtained for chemical analysis from the deep groundwater monitoring wells on Block 20 during the February 2012 sampling event

3.0 APRIL 2012 FINDINGS (SHALLOW, PERCHED GROUNDWATER WELLS)

Each of the monitoring wells completed during the April 2012 study (MW20-4 through MW20-6) were shallow wells set in the perched groundwater zone (upper 20 feet of the soil column) to evaluate the potential presence of perched groundwater and the potential presence of contaminant impacts to the perched groundwater. Groundwater was present in MW20-5 only. Contaminants of concern (metals, PAHs, PCBs, VOCs and petroleum hydrocarbons) were not detected in perched groundwater samples obtained for chemical analysis from MW20-5 during the April 2012 sampling event. Additional site assessment activities to be completed immediately following building demolition

3.1. Survey Site Features

Prior to and following demolition of the existing building, we request that Sellen survey site features that impact such as hydraulic hoists, strip drains, catch basins, oil/water separator and approximate locations of the USTs. The CAD survey should be provided to GeoEngineers.

3.2. GPR Survey and UST Removal

Three USTs were formerly in use at the Toyota auto sales and service center. The approximate locations of the three USTs are shown on Figures 2 through 4. One of the three USTs (an approximately 2,000-gallon gasoline UST) was reportedly removed from the southern side of the existing building and petroleum hydrocarbon contamination remained in-place following completion of the UST removal activities. The status of the remaining two USTs are unknown. Following demolition of the existing building and prior to commencement of mass-excavation activities, a Ground Penetrating Radar (GPR) survey will be conducted to attempt to locate the remaining two USTs and excavation to remove the two USTs will be completed.

The GPR survey and UST removal will generally consist of the following:

- GeoEngineers will complete and submit the required 30-day Notification and Request for a Waiver paperwork to Ecology. The Request for Waiver paperwork will be completed so the USTs can be removed as soon as the construction schedule allows, prior to the 30-day waiting period following discovery required by Ecology.
- GeoEngineers will subcontract the completion of a GRP survey. The survey will be completed as soon as the buildings are demolished and will take approximately one day to complete.
- Sellen Construction will subcontract a Washington State Certified UST Removal contractor to complete the UST testing and removals.

- A GeoEngineers' environmental representative and registered Washington State UST Site Assessor will observe and document the removal of the USTs in general accordance with Washington Administrative Code (WAC) 173-360 and Ecology's "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" dated February 1991 and revised in April 2003.
- During and following removal of the USTs, GeoEngineers will obtain soil samples for field screening and chemical analysis.

We estimate that the GPR survey and UST removal process will take approximately 2-3 days to complete: 1 day for the GPR survey and 1-2 days for UST removal activities. Note that this schedule does not include time for remedial excavation of contaminated soil associated with the USTs (if present).

3.3. Additional Test Pits Beneath Demolished Toyota Building

Approximately 11 test pits will be completed following building demolition activities. The proposed locations of the additional test pits are shown on Figure 3. The purposes of the test pits include:

- Evaluate the presence of contaminated soil beneath the auto repair facility to plan for remedial excavation during mass-excavation (no explorations were completed from beneath the auto repair facility and strip drains, hydraulic hoists and use of petroleum products was common in this part of the facility);
- Characterize soil in the vicinity of boring B20-13 where lead was detected above the cleanup level at a depth of approximately 7.5 feet below the ground surface and obtain soil samples;
- Characterize soil along Westlake Avenue where soil will not be excavated for construction purposes to evaluate if contaminated soil extends into that portion of the property. If contaminated soil extends into this portion of the property that will not be excavated for construction purposes, a remedial excavation may be necessary in that location in order to achieve a No Further Action designation from Ecology for Block 20.

The test pits will be completed by Sellen's excavator operator using equipment they will have on the property. A representative of GeoEngineers will be on site to obtain soil samples from the test pits for field screening and chemical analysis. Test pits will be completed to depths ranging between approximately 10-15 feet below the ground surface and we anticipate that the test pits will take up to 2 days to complete.

4.0 SOIL CATEGORIES AND DEFINITIONS

Based on the results of the previous subsurface investigations completed at the Subject Property, Block 20 was divided into three soil handling categories to guide the contractor during soil excavation activities. This section presents and generally defines the three soil handling categories of soil that are present on the property. The following section (Section 5.0) discusses the specific soil excavation and handling protocol for each soil category.

4.1. Contaminated Soil

For the purposes of soil handling for the Rufus 2.0 Block 20 construction activities, soils are considered "contaminated" and not acceptable for unrestricted end-use and should be transported to a controlled and permitted landfill, if:

- Contaminant concentrations for any analyte exceed regulatory cleanup levels (MTCA Method A or B Cleanup Level for Unrestricted Land Use).
- 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.

4.2. Impacted Soil

Soils are considered "impacted" and should be transported to a controlled and permitted landfill, CEMEX' treatment and disposal facility in Everett, Washington, or owner-approved fill location if:

- Contaminant concentrations for any analyte that exceed laboratory detection limits but are **less** than regulatory cleanup levels (MTCA Method A or B Cleanup Level for Unrestricted Land Use).
- Metals are detected at or below natural background levels for the Puget Sound region (Ecology, 1994).
- Physical evidence of contamination (sheen, odor, staining) is observed.

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

4.3. Clean Soil

Soils are considered "clean" and can be transported to an owner-approved fill location if:

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

Based on the results of the Phase II ESA testing, fill soil on Block 20 was classified as either contaminated or impacted. With the exception of a localized area on Block 20, native soil on Block 20 was classified as clean.

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

5.0 SOIL EXCAVATION AND HANDLING RECOMMENDATIONS

Based on the results of the previous subsurface investigations completed at the Subject Property, Block 20 was divided into three soil handling categories to guide the contractor during soil excavation activities. The three soil management categories are contaminated, impacted and clean. The locations of each of the categories are shown on the Soil Management Categories, Figure 4. Generally, contaminated soil was encountered on the eastern portion of the property (along 8th Avenue) and impacted soil was encountered along the western portion of the property (along 7th Avenue). Generally, clean native soil is present below the impacted or contaminated fill soil across the property. The Soil Management Categories shown in Figure 4 will be updated based on the chemical analytical results of soil samples obtained during the test pit explorations and an addendum to this CCP will be issued. Figure 4 should be reviewed in concert with understanding this section of the report.

5.1. Blue Category – Contaminated Soil

Contaminants of concern (heavy oil-range petroleum hydrocarbons, lead and cPAHs) were detected at concentrations **greater** than the MTCA cleanup levels in the blue category (shown on Figure 2). Special handling and end use considerations are needed for soil to be excavated within the blue category. The special handling and disposal should include the following:

- **UST Removal:** As described in Section 3.2 above, based on the results of our Phase I ESA, at least two USTs located within the blue category were closed in place and are likely still present beneath Block 20. The USTs must be removed in accordance with the "Underground Storage Tank Regulations" (Washington Administrative Code [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 will be present on the subject property during the removal of the USTs. The approximate locations of the USTs are shown on Figures 2 and 3.
- **Soil Excavation and Segregation**: a representative of GeoEngineers will be on site during the excavation of soil in the blue category to field screen soil and obtain confirmation soil samples. Field screening methods are described in Appendix A. As the soil in the blue category is excavated, the Contractor should segregate this soil from soil excavated from the remaining categories to prevent mingling of the contaminated soil in the blue category and the clean soil (that is not contaminated) excavated from the green category.
- **Loading/Transportation and/or Temporary Stockpiling of Contaminated Soil**: Contaminated soil can either be loaded directly into trucks and transported for off-site permitted disposal, or can be temporarily stockpiled on plastic sheeting (Visqueen) on the Subject Property pending end use/disposal. The Contractor must develop and maintain a procedure to track contaminated soil loads transported offsite for permitted disposal.
- **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's treatment and disposal facility in Everett, Washington.
    - Republic's Rabanco-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 be obtained in the blue area following the removal of contaminated soil. The Contractor will temporarily halt excavation at confirmation sample locations pending receipt of chemical analytical results. Confirmation soil samples will be submitted for chemical analysis for contaminants of concern either on a standard (7 to 10 business days) and/or 24-hour turnaround depending on project's needs.

5.2. Yellow Category – Impacted Soil

Contaminants of potential concern (gasoline-range, diesel-range and heavy oil-range petroleum hydrocarbons, PAHs and VOCs) were detected at concentrations **above** laboratory detection limits but **less** than the MTCA Method A or B cleanup levels in soil samples obtained from the fill soil in the yellow category (shown on Figure 2). Contaminants of potential concern were not detected or were detected at concentrations that represent background conditions in native soil in the yellow category. 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 the soil in the yellow category is excavated, the Contractor should segregate this soil from soil excavated from the blue category to prevent co-mingling of the impacted soil in the yellow category and the contaminated soil excavated from the blue category. Attention to soil segregation vertically is also important, as it relates to the fill/native soil contact. GeoEngineers will be on site to assist in soil segregation activities.
- **Loading/Transporting and/or Temporary Stockpiling of Impacted Soil**: impacted soil can either be loaded directly into trucks for off-site permitted disposal, or can be temporarily stockpiled on asphalt or plastic sheets (Visqueen) on the Subject Property pending end use/disposal. Any stockpiles that remain on-site must be covered with plastic sheets. The Contractor must develop and maintain a procedure to track impacted soil loads transported offsite for permitted disposal.
- **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's treatment and disposal facility in Everett, Washington.
    - Republic's Rabanco-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 Seneca for 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**: No confirmation soil sampling from the excavation of the yellow category will be necessary unless unexpected contamination is identified.

5.3. Green Category – Clean Soil

Contaminants of potential concern were **not detected** in soil samples obtained in the green category or were detected at concentrations that represent background conditions. There are no special handling or end-use requirements for this soil.

With the exception of a localized area identified at B20-3 and MW20-4, native soil on the subject property is considered clean. It is possible that portions of the fill soil on Block 20 will be classified as clean soil following demolition of the existing buildings and completion of the proposed test pits.

6.0 DISCOVERY OF UNEXPECTED POTENTIALLY CONTAMINATED/IMPACTED SOIL OR USTS

GeoEngineers will be on site performing periodic field screening during excavation of the yellow (impacted soil) category. 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 UST is discovered, the Contractor should notify GeoEngineers immediately for characterization prior to removal and/or disposal. A "Potentially Contaminant Impacted Soil Notification Form" is presented in Appendix B. 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.

7.0 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 20. Although contaminants of concern were identified in groundwater samples obtained from Block 20, 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.

8.0 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 exceedence.

9.0 HAZARDOUS MATERIALS MANAGEMENT OF DEMOLISHED UTILITIES

We understand that the contractor will subcontract appropriate demolition contractors to remove buildings and utilities. We understand that hazardous building materials such as asbestos in building materials and pipes will be appropriately managed, handled and disposed of by specialty subcontractors. GeoEngineers' subconsultant Pacific Rim Environmental will be on site during removal of materials that have the potential to contain asbestos in order to document their appropriate removal per abatement specifications that they prepared. Pacific Rim Environmental's role will be as a third party observer (similar to GeoEngineers' role for soil management).

10.0 CONTACT INFORMATION

If unexpected potentially contaminated soil is discovered during construction activities, the Contractor should notify the people listed on the "Potentially Contaminant Impacted Soil Notification Form" included in Appendix B of this plan. 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				
Peter McAuliffe	Development Manager	206.793.0290	206.808.7847	peterm@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

Name	Title	Cell Phone	Office Phone	Email
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
Jeff Lewis	Pacific Rim Environmental – subconsultant to GeoEngineers for HBM	--	206-244-8965	jlewis@pacrimenv.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

11.0 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 C, titled "Report Limitations and Guidelines for Use," for additional information pertaining to use of this report.

FIGURES

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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

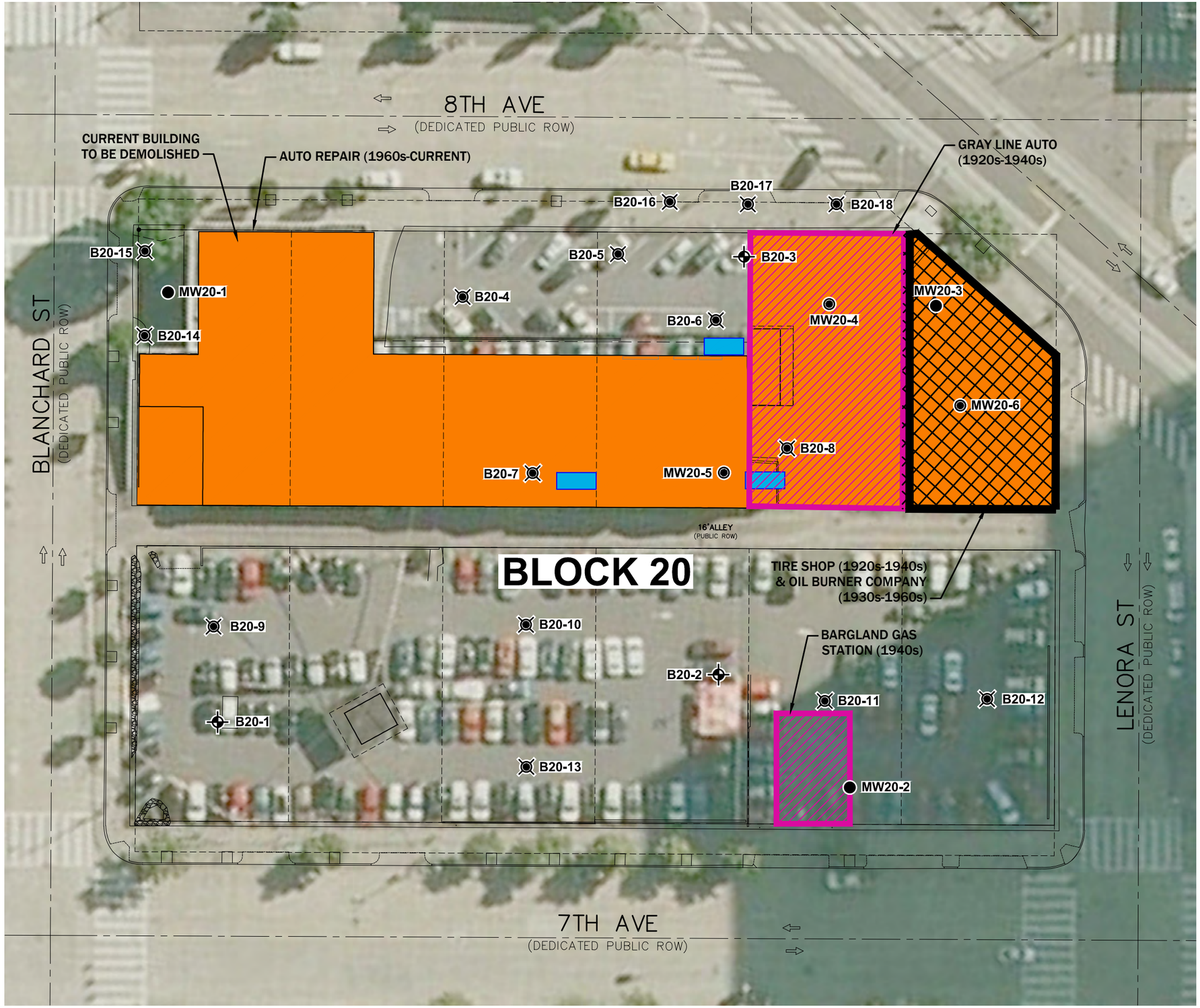
Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map

Rufus 2.0 Development - Block 20
Seattle, Washington

GeoEngineers

Figure 1



Legend

- 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
- TA-B-2 — Boring/Monitoring Completed by Others
- Historical Auto Repair Building Footprint
- Former Gas Station General Location
- Possible or Known Former UST Area
- Other Use of Potential Concern as Indicated

40 0 40
FEET

Notes

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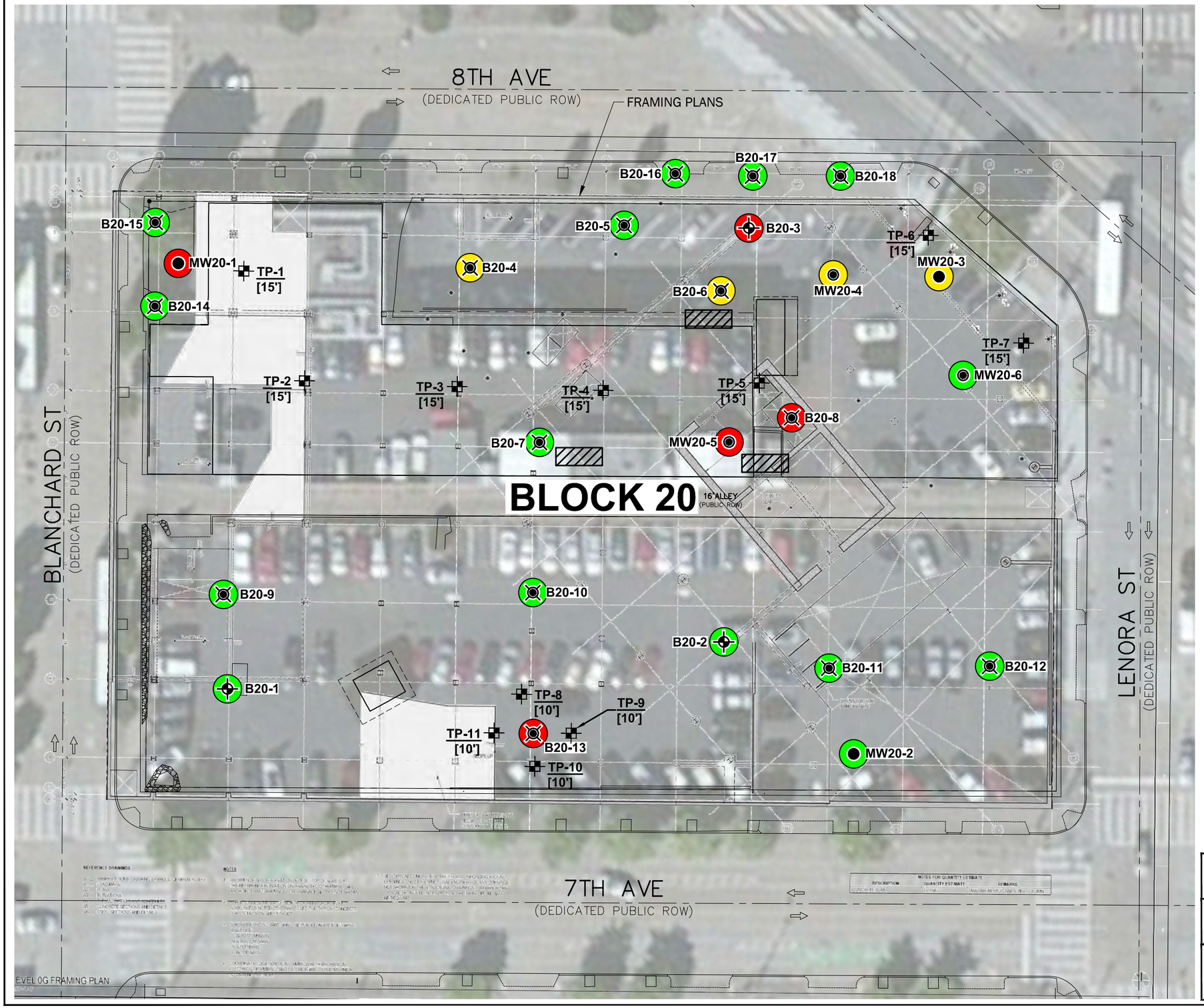
Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Aerial photo from Aerial Express, 2009.

Historic Sources of Potential Contamination

Rufus 2.0 Development
Seattle, Washington

GeoEngineers

Figure 2



Legend

- **TP-6** — Approximate Location of Proposed Test Pit
- **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
- **TA-B-2** — Boring/Monitoring Completed by Others
- Contaminants of concern detected at concentrations greater than the corresponding MTCA Method A cleanup levels in one or more soil samples obtained from the boring. See cross-sections for chemical analytical results of discrete soil samples. For MW14-1 previous results indicate exceedances of MTCA in this vicinity.
- Contaminants of concern detected at concentrations less than the corresponding MTCA Method A cleanup levels. See cross-sections for chemical analytical results of discrete soil samples.
- Contaminants of concern were not detected. Metals were detected at concentrations similar to natural background concentrations.
- Possible or Known Former UST Location

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FEET

Notes

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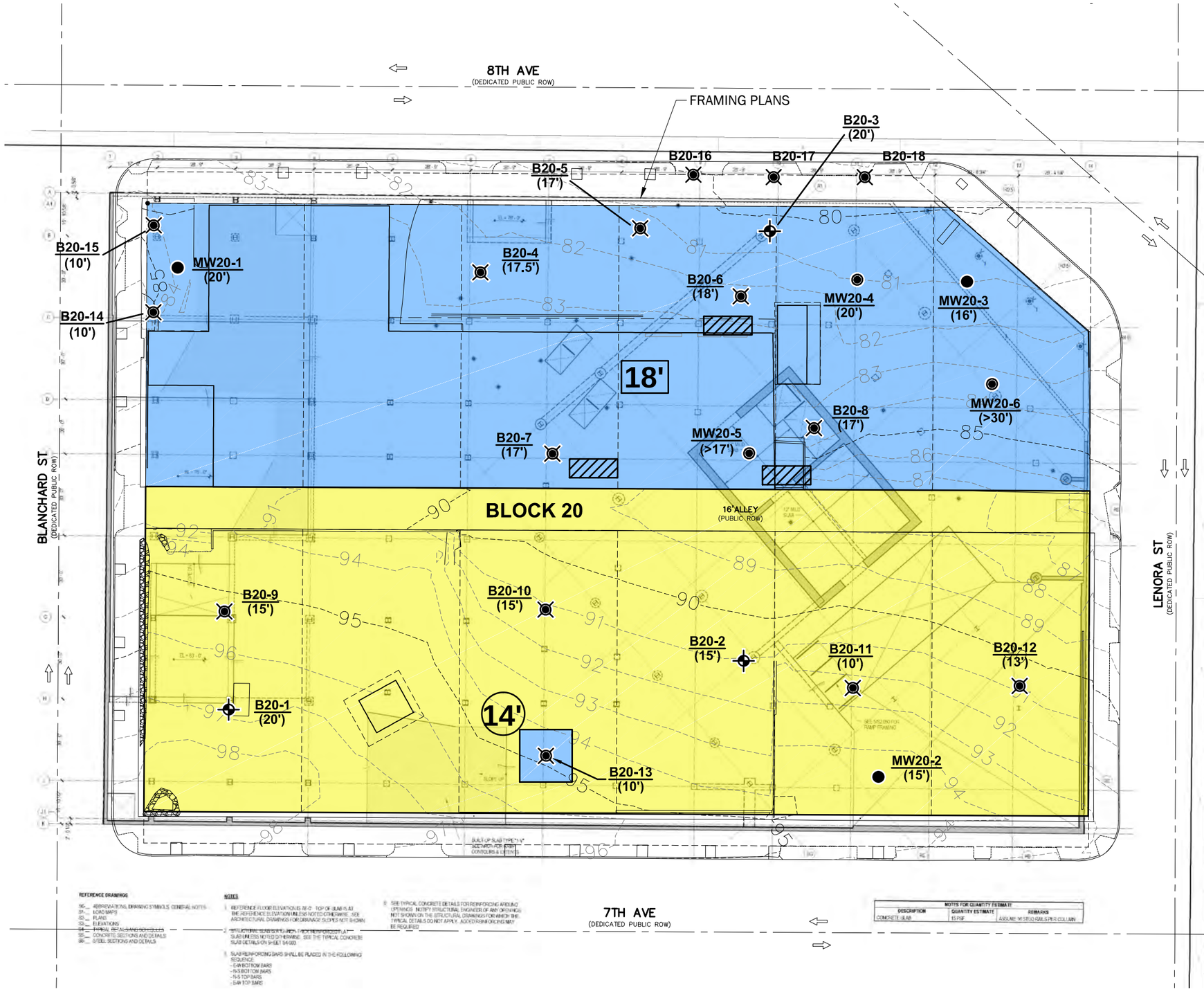
Soil Chemical Analytical Results

Rufus 2.0 Development
Seattle, Washington

GeoEngineers

Figure 3



Legend

- 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
- TA-B-2 — Boring/Monitoring Completed by Others
- (2') — Approximate Fill Thickness Observed in the Boring
- [15'] — Approximate Depth of Excavation
- Contaminants of concern detected at concentrations greater than the MTCA cleanup levels. Soil excavated from these locations will be transported to either Waste Management or Allied Waste for permitted disposal.
- Contaminants of concern detected at concentrations less than the MTCA cleanup levels. Fill soil excavated from these locations will be transported to CEMEX for permitted disposal as a Class II soil.
- 4' — Average Fill Thickness (feet) Estimated to Calculate Soil Disposal Costs
- 18' — Average Soil Contamination Thickness (feet) Estimated to Calculate Soil Disposal Costs
- Possible or Known Former UST Location

N W E S

40 0 40
FEET

Notes

1. Test pit locations will be determined from field surveying results.
2. The locations of all features shown are approximate.
3. 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 Categories

Rufus 2.0 Development
Seattle, Washington

GeoEngineers | **Figure 4**

\\SEA\PROJECTS\2012\0434001\CAD\23\0434001-23_TI00_FIG 4_SOIL MGMT CATEGORIES.DWG\TAB:FIG 4 MODIFIED BY MFORMOLO ON NOV 03, 2014 - 13:06

APPENDICES

GeoEngineers

APPENDIX A
Field Procedures

APPENDIX A
FIELD PROCEDURES

Field Screening of Soil Samples

Soil samples obtained from the explorations were 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
Potentially Contaminant Impacted Soil Notification Form

RUFUS 2.0 REDEVELOPMENT
POTENTIALLY CONTAMINANT IMPACTED SOIL NOTIFICATION FORM

Prepared for:	**GENERAL INFORMATION**	
Acorn Development, LLC c/o Seneca Group 1191 Second Avenue, Suite 1500 Seattle, Washington 98101	DATE OF DISCOVERY:	TIME OF DISCOVERY:
	PERSON DISCOVERING CONDITION:	PHONE NUMBER:
Prepared by: GeoEngineers 600 Stewart Street, Suite 1700 Seattle, WA 98101 206.728.2674	PERSON FILLING OUT FORM:	PHONE NUMBER:
	APPROXIMATE LOCATION OF SOIL ON THE SITE:	

SOIL CHARACTERISTICS

PHYSICAL CHARACTERISTICS:

Odor:
- ☐ Yes (Describe_____)
- ☐ No

Staining:
- ☐ Yes (Describe_____)
- ☐ No

Other: _____

_____

SOIL DISTURBED:
- ☐ Soil in-place
- ☐ Soil stockpiled

FREE LIQUIDS:
- ☐ Yes (Content_____%)
- ☐ No

ACTIONS TAKEN: _____

_____

_____

_____

_____

ESTIMATED VOLUME OF CONTAMINATED SOIL:

NOTIFICATION CONTACT INFORMATION

SENECA	GEOENGINEERS	SELLEN
Todd Leber	Chris Brown	Brian Duke
C: 206.550.5222	D: 425.284.7223	C: 206.571.2628
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ADDITIONAL INFORMATION

This record serves to document information, actions, and notifications regarding the discovery of and response to the presence of suspected and known contamination on the project.

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
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 20 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.

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.

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

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.

Have we delivered World Class Client Service?

Please let us know by visiting **www.geoengineers.com/feedback**.

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