URS

REPORT
LIMITED PHASE II SITE INVESTIGATION
SRO BELLEVUE CORNER PROPERTY
NE 8TH AND 106TH AVENUE
BELLEVUE, WASHINGTON

PREPARED FOR:
STERLING REALTY ORGANIZATION

URS JOB NO. 33761152
October 10, 2008

URS

October 10, 2008

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Report
Limited Phase II Site Investigation
SRO Bellevue Corner Property
NE 8th & 106th Ave NE
Bellevue, WA

Dear Mr. Daniels:

This report presents the results of the Limited Phase II Site Investigation conducted at the Sterling Realty Organization Bellevue Corner Property located in Bellevue, Washington. The investigation was conducted in general accordance with our proposal dated August 14, 2008.

We trust this report meets your current requirements. If you have any questions or require additional information please feel free to contact us.

Very truly yours,
URS CORPORATION

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1.0 INTRODUCTION

URS Corporation (URS) is pleased to submit this report to Sterling Realty Organization (SRO) presenting the results of the limited Phase II site investigation conducted at the Bellevue Corner Property in Bellevue, Washington (subject property or site). We understand that SRO owns the property and Trammell Crow Company (TCC) is considering entering into a ground lease which will include demolition of the existing buildings and construction of a new commercial structure. Prior environmental assessments have been conducted at the site which have identified potential historic on site (former service station) and off site (former dry cleaner) sources of contamination. Recent activities conducted by URS on behalf of SRO include reviewing Washington Department of Ecology (Ecology) files, drilling of eight soil borings and converting four into groundwater monitoring wells, and sampling of site soil and groundwater. The investigation presented herein was performed to further evaluate site conditions prior to proposed construction activities. Information regarding the site background and the prior investigations are summarized below.

1.1 SITE DESCRIPTION AND TOPOGRAPHY

The subject property is located at the southeast corner of the intersection of Northeast 8th Street and 106th Avenue Northeast in Bellevue, King County, Washington (Figure 1). The subject property is bounded to the north by NE 8th Street, to the east and south by commercial/retail properties and to the west by 106th Avenue NE. Land use in the site vicinity consists primarily of commercial office and retail properties. The subject property consists of approximately 1.4-acres on 3 tax parcels containing two commercial buildings (Figure 2). The majority of the property is either covered by buildings and adjacent asphalt paved parking. The northwestern corner of the property is unpaved and covered by gravel.

The site slopes gently to the south-southwest and ranges in elevation from approximately 160 to 152 feet above mean sea level (msl). The nearest surface water body is Meydenbauer Bay, which is just over ½ mile to the south-southwest.

1.2 PREVIOUS INVESTIGATIONS

1.2.1. FORMER UNOCAL SERVICE STATION

Prior Phase I Environmental Site Assessments (ESAs) conducted at the subject property identified a former Unocal service station that was historically located at southeast corner of NE 8th Street and 106th Avenue NE (ATC, 1998, Earth Consultants 1997, EMCON, 1990). The Unocal service station was in operation from 1969 through 1991. The service station was remediated in the early 1990's during decommissioning (EMCON 1992). Remediation included removal of multiple underground storage tanks (USTs), the pump islands, piping, a hydraulic hoist, and excavation of 1,500 cubic yards of petroleum containing soils (PCS). Five monitoring wells were installed at the site and perched groundwater was noted in the glacial till soils at depths ranging from 21 to 31 feet bgs. The groundwater gradient was inferred to be southeasterly. Gasoline constituents (e.g., benzene, ethylbenzene, and total xylenes) were detected in the groundwater in well MW-3 at concentrations of 3 µg/l, 15 µg/l and 14 µg/l, respectively

(Figure 3). Concentrations of gasoline constituents in groundwater were below Model Toxics Control Act (MTCA) Method A cleanup levels. These five wells were abandoned during remedial soil excavation activities the following year. The Ecology provided a determination of no further action for the former service station on July 2, 1992.

1.2.2. FORMER OFF-SITE DRY CLEANER

A dry-cleaning operation (One-Hour Martinizing) was formerly located on the northeastern corner of NE 8th & 106 Avenue NE (Figure 2) reportedly from the late 1970's to the 1980s. Soil and groundwater contamination by tetrachloroethylene (PCE) was confirmed at this property (ATC, 1998 and GES 2006). A prior investigation conducted by URS for Central Puget Sound Regional Transit Authority on the northwestern portion of the subject property in 2000 identified low concentrations of PCE in groundwater (Figure 3). During a recent investigation at the subject property conducted by Terra Associates on behalf of TCC in 2008, PCE was detected in the shallow groundwater in monitoring well MW-3/B-3 (80 µg/l) at a concentration exceeding the MTCA Method A cleanup level of 5 µg/l (Figure 3). Deeper groundwater samples, collected from monitoring wells screen within the underlying regional aquifer did not detect PCE. Petroleum hydrocarbons were not detected in the soil and groundwater samples collected during this limited investigation.

URS reviewed available information on file at the Ecology Northwest Regional Office in Bellevue, Washington regarding the former dry cleaner, the suspected source of PCE detected in groundwater at the subject property. The former dry cleaner, was located at 10610 NE 8th Street and was most recently occupied by Thinker Toys. Prior to the dry cleaner, this property was a gas station. Presently the property is vacant, paved with asphalt and used as a parking lot. The USTs associated with the former gas station were reportedly removed and diesel impacted soils excavated. Investigations conducted by Golder and Associates between 1998 and 2005 identified PCE contamination in the soil, soil gas and groundwater. Indoor air testing conducted at the Thinker Toy retail space detected PCE and degradation products within the building. PCE concentration detected in the soils ranged from 0.0015 mg/kg to 2.1 mg/kg. Low concentrations of the degradation products, trichloroethylene (TCE) and cis,1-2-dichloroethylene (DCE) were also detected. Groundwater samples collected from three monitoring wells installed within the upper water bearing zone at this property (Figure 2) detected PCE at concentrations ranging from 21 ug/l (BH-12) to 649 ug/l (BH-11). The shallow perched groundwater was noted at depths ranging from 14 feet bgs to 18 feet bgs and the groundwater flow was inferred to be southerly (Golder, 2004).

The Ecology file information indicated that the extent of contamination had not been determined. No information was available identifying a source, date or mechanism for release of PCE at the suspected source location. The previous investigations were focused on the property at 10610 NE 8th Street and did not address off site issues. It is not known if remedial actions have been implemented at this property. Selected portions of the prior reports are provided in Appendix A.

2.0 OBJECTIVES AND SCOPE

The primary objectives of the Limited Phase II Site Investigation were to further evaluate the nature and extent and of PCE/volatile organic compound (VOC) affected groundwater in the northwestern and

central portions of the subject property and to assess the vertical and horizontal extent of VOC affected soils. To achieve these objectives, URS implemented the following scope of work:

- Advanced four soil borings (URS-SB-1 through SB-4) at selected locations at the subject property using hollow stem auger drilling techniques.
- Installed four groundwater monitoring wells (URS-MW-1 through MW-4) and collected groundwater elevation data.
- Surveyed the top of casing elevation of the four new wells and one existing well located at the subject property to facilitate preparation of groundwater elevation contour maps;
- Collected soil samples from each boring for chemical analysis for VOCs by EPA Method 8260B and gasoline-range petroleum hydrocarbons using Washington State Method NWTPH-Gx. Collected groundwater samples from the four new monitoring wells, temporary well URS-SB-3 and existing monitoring well MW-3/B-3;
- Evaluated remedial alternatives to address the soil and groundwater contamination in light of the proposed future site redevelopment; and
- Prepared this report presenting our findings and conclusions.

The following sections provide a description of the field procedures and specific approach utilized in this investigation.

3.0 METHODS OF INVESTIGATION

3.1 SAMPLING LOCATION RATIONALE

The rationale for selection of the soil boring and well locations is summarized in Table 1. The boring and monitoring well locations are shown on Figure 3. A total of eight soil borings were drilled, four of which were converted into monitoring wells. Borings SB-1 through SB-3 were placed within the area of suspected groundwater contamination to assess PCE concentrations in the unsaturated and saturated zone soils. The easternmost boring, SB-4, was situated to define the eastern extent of PCE affected soils. The four monitoring wells and temporary well URS-SB-3 were distributed across the western portion of the site to assist in the delineation of the groundwater PCE plume.

3.2 DRILLING AND SAMPLING PROCEDURES

Prior to implementing the investigation, the One Call utility notification service was contacted to demark the public utilities to the property boundary. URS contracted Applied Professional Services, Inc. (APS) of North Bend, Washington, to complete a site-specific utility clearance within the property boundary. APS located existing utilities on the property and cleared the soil boring locations. URS also met with SRO personnel to scope out the proposed boring locations.

The drilling program was completed by Cascade Drilling of Woodinville, Washington August 25 through 27, 2008. Four shallow groundwater monitoring wells were drilled and installed, three shallow soil borings were drilled to 30 feet bgs and subsequently abandoned, and one deep soil boring was drilled to 75 feet bgs and subsequently abandoned. Due to the high density of underground utilities located beneath the sidewalk along NE 8th Street, well locations initially proposed along the northern property boundary were moved slightly to the south out of the right-of-way. Thus, a street use permit from the City of Bellevue was not required to complete these wells.

The soil borings and monitoring wells were installed using hollow stem auger drilling methods. Monitoring of drilling and soil sampling activities were conducted by a qualified URS geologist. The geologist maintained a detailed log of the subsurface materials encountered and organic vapor readings for the soils encountered in the borings. Particular attention was given to noting visible evidence of contamination, odors, or other relevant factors indicative of the presence of contaminants of concern. Soils were classified in general accordance with the Unified Soil Classification System. The borings logs and well construction diagrams are provided in Appendix B.

During drilling, soil samples were collected at 2.5-foot intervals to the total depth of the boring. All soil sampling equipment was washed in dilute Alconox detergent solution, rinsed in tap water, and dried prior to initiating the boring and before collecting each soil sample. The subsurface drilling equipment was also decontaminated prior to initiating the boring. Soil samples were collected from the boring and selected for laboratory analysis based on field screening results (e.g., staining, odor or elevated photoionization detector readings). Soil sampling logs are provided in Appendix C.

The monitoring wells were completed to 30 feet below ground surface (bgs) and were constructed with a 10 foot section of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) well screen (0.020" slots). The annular space was filled with 2-12 sand as filter back from the bottom of the borehole to approximately 2 feet above the screened interval (18' bgs), and the remaining annular space was filled with bentonite. The well was completed with a locking cap and flush mounted vault. A licensed surveyor, Bush, Roed &Hitchings, Inc. surveyed the top of casing elevations of the site monitoring wells.

One groundwater sample was collected from soil boring URS-SB-3 prior to borehole abandonment. A temporary well was installed in the borehole, consisting of 10 feet of 2" diameter Schedule 40 PVC with 0.020" slots and 20 feet of blank Schedule 40 PVC, and the annular space from 18 to 30 foot bgs was filled with 2-12 sand as filter pack. Multiple attempts were made to sample the temporary well immediately following installation, but were unsuccessful due to slow recovery of the perched groundwater zone. The temporary well was secured overnight and successfully sampled the following morning (August 27, 2008) using a dedicated polyethylene bailer. Groundwater sampling of the monitoring well network was conducted on September 10, 2008 using low-flow sampling methods. Field parameters (e.g., pH, temperature, dissolved oxygen and turbidity) were monitored with a Horiba U-22 water quality meter and the results are presented on the groundwater sampling logs provided in Appendix C. Monitoring wells URS-MW-2 and URS-MW-4 were dry, thus no groundwater samples could be collected on September 10th.

Drill cuttings, decontamination water and well purge water were placed in labeled 55-gallon steel drums and left onsite pending laboratory analytical results.

3.3 ANALYTICAL METHODS

Soil and groundwater samples selected for analysis were placed directly from split spoon sampler or peristaltic pump tubing into laboratory-supplied glassware, respectively. The sample glassware was placed into a cooler with ice and submitted to the laboratory under chain of custody protocol. The soil and groundwater samples were submitted to Fremont Analytical, an Ecology-accredited laboratory, and analyzed for VOCs by EPA Method 8260B and gasoline-range petroleum hydrocarbons by Ecology Method NWTPH –Gx. The two soil samples with the highest PCE concentrations were also tested for TCLP VOCs. The applicable Ecology MTCA Method A cleanup levels are summarized in Tables 2 and 3. The laboratory analytical reports are provided in Appendix D

4.0 INVESTIGATION FINDINGS AND CONCLUSIONS

4.1 SUBSURFACE CONDITIONS

Based on the recent and prior investigations performed at the subject property, the site is underlain by fill material consisting of silty fine to coarse sand and gravel which overlies native Vashon glacial till. The fill generally ranges in thickness from 3 to 6 feet (Terra Associates, Inc., 2008). Portions of the former service station remedial excavation area were excavated and may have areas with greater fill thickness. Thus, more extensive filling is believed to be present in the western portion of the subject property. Advance outwash deposits were encountered beneath the till at depths of approximately 60 to 75 feet bgs. This material consisted of silty sands to gravelly sands to at least approximately 85 to 90 feet bgs (Terra Associates, 2008). A dense silty sand to sandy silt layer was encountered beneath the advance outwash.

Contamination was generally not evident in the borings during field screening of soils (e.g., no odors or staining was evident). However, PID readings of approximately 1 to 18 parts per million (ppm) were noted in borings. The soil field screening results are provided on the boring logs in Appendix B.

Shallow perched water bearing zones were encountered in the borings during drilling at 23 to 30 feet bgs. Static groundwater levels measured on September 10, 2008 are summarized in Table 4. Monitoring wells URS-MW-2 and URS-MW-4 did not have measurable groundwater during the September 10th groundwater monitoring evident. The perched saturated zone appears to range in thickness from approximately 2.5 feet to 6 feet based upon the static groundwater level measurements. During groundwater sampling, water level declines were noted within the wells between approximately 1 to 2.5 feet while purging at pump rates ranging from 0.05 to 0.1 gallons per minute (gpm). Thus, the perched saturated zone does not appear to yield significant quantities of water.

Groundwater flow in the perched groundwater is inferred to be southwesterly as depicted on Figure 4. The groundwater gradient from northeast to southwest was measured to be 0.02 feet/feet. However, based on the contaminant distribution noted in the saturated zone soils, it appears that the groundwater

flow direction fluctuates from southwesterly to southeasterly. A deeper water bearing zone was noted beneath the subject property in the advance outwash deposits at depths ranging from 75 feet to 88 feet bgs

A north to south geologic cross section is depicted on Figure 5. As indicated on this figure, the perched groundwater appears to be continuous across the western portion of the site, although it appears to be discontinuous to the east as indicated by the lack of groundwater observed in well URS-MW-2 and URS-MW-4.

4.2 ANALYTICAL RESULTS

4.2.1. SOIL

Selected soil samples from the borings were submitted for analysis and the results are summarized in Table 2 and are depicted on Figure 5. The chlorinated dry cleaning solvent PCE was detected in the saturated zone soils at concentrations exceeding the MTCA Method A cleanup level of 0.05 mg/kg. PCE was only detected in two of the shallower soil samples (URS-MW-4-12.5 and SB-3-17.5) collected above the perched groundwater zone. The highest concentrations of PCE were noted at MW-1 at a depth of 27.5 feet (0.41 mg/kg) and SB-1 at 30 feet bgs (0.22 mg/kg). Detectable levels of PCE were not identified in soils at MW-2 and MW-3. PCE concentrations generally declined with depth. No PCE degradation products or gasoline constituents were detected in the soil samples (Table 2). The vertical distribution of PCE in the soil is depicted on Figure 5.

4.2.2. GROUNDWATER

During groundwater sampling low flow purging, dissolved oxygen (DO) values generally ranged from approximately 6 to 9 mg/l, indicating an aerobic environment, and pH values ranged from approximately5.5 to 6.5 S.U.

The groundwater analytical results are summarized on Table 3 and are shown on Figure 6. PCE was detected in the groundwater at concentrations ranging from not detected (URS-MW-3) to 340 ug/l (URS-MW-1). The highest concentrations of PCE were detected in monitoring wells URS-MW-1 and B3/MW-3 (80 and 88 ug/l), situated along the northern property boundary in the western portion of the property (Figure 6). PCE concentrations were noted to decline significantly to the south. The common degradation product, TCE was also detected in the groundwater sample collected at URS-MW-1 (3.5 ug/l). TCE concentrations did not exceed the MTCA Method A cleanup level of 5 ug/l. No other VOCs or gasoline-range petroleum hydrocarbons were detected in the groundwater samples.

4.3 CONCLUSIONS

Based on the findings of the subsurface investigation conducted at the SRO Bellevue Corner Property, located in Bellevue, Washington, URS has drawn the following conclusions:

- The subject property is underlain by fill material (3-6 feet thick), dense glacial till soils (to approximately 60 feet bgs) and advance outwash deposits (Figure 5). Perched groundwater was

encountered in the till at depths ranging from 23 to 30 feet bgs. Although saturated soils were noted in wells MW-2 and MW-4, measurable groundwater was not detected in the wells during the September 2008 groundwater sampling event. The groundwater flow in the perched zone is inferred to be southwesterly. Although, based on the distribution of PCE noted in the site soils at URS-MW-4, and flow conditions noted on adjacent properties, there appears to be a southeasterly component of flow. The variability in the groundwater flow direction may be associated with seasonal groundwater level fluctuations. The regional deeper groundwater occurrence was documented in the advance outwash at depths ranging from between 75 to 88 feet bgs.

- The perched water bearing zone appears to be limited in thickness and does not yield significant quantities of water based upon the groundwater level measurements and well purging information obtained during the groundwater sampling.
- The recent investigations conducted by URS and Terra Associates in the vicinity of the former Unocal service station in the western portion of the site did not identify petroleum-impacted groundwater and soils. Thus, it appears that residual gasoline contamination is not present within this area and the prior remedial efforts at the former service station have successfully removed PCS.
- PCE was detected in the site soils from 12.5 feet bgs (0.17 mg/kg at URS-MW-4) to 45 feet bgs (0.05 mg/kg at URS-SB-1) at levels exceeding or approaching the MTCA Method A cleanup level of 0.05 mg/kg. The vertical extent of PCE appears to vary across the western portion of the property. The average thickness of PCE affected soils is estimated to be approximately 20 feet. The estimated areal extent of PCE affected soils is depicted on Figure 7.
- The previous investigations conducted at the former dry cleaner located upgradient/north of the subject property detected elevated levels of PCE in the soils and groundwater (Golder, 2005). Levels of PCE were detected in the soils at concentration exceeding the MTCA Method A cleanup level. PCE was detected as high as 2.1 mg/kg in the soil and 640 µg/l in groundwater. Based on the information on file with Ecology, it does not appear that the source area of PCE impacts has been delineated or that the extent of off site migration has been fully assessed.
- The highest levels of PCE in both the soils and groundwater at the subject property were noted along the northern property boundary, which is closest to the former dry cleaner across NE 8th Street. Based on the distribution of PCE detected in the subject property soils, it is apparent that the source of the PCE detections is the upgradient former dry cleaner property. No apparent on site sources of PCE were identified during the current and prior site investigations.
- Based on the distribution of PCE noted in the site groundwater, elevated levels of PCE may be present in the groundwater along the western property boundary and may extend beyond the southern property boundary in the western portion of the subject property.
- Based on the on the vertical and lateral extent of PCE affected soils, it is estimated that approximately 20,000 to 30,000 cubic yards (cy) of soil will require disposal at a Subtitle D landfill. This equates to a contaminated soil zone between 30 to 45 feet in thickness. Because the dry cleaning solvent constituents within the soil are considered a listed waste (i.e., F002), these soils could be considered a dangerous waste in accordance with Chapter 173-303 WAC. Thus, to

dispose of this soil as a "non-dangerous" waste will require obtaining a "contained-out" designation from Ecology so that the VOC affected soils can be managed as a non-dangerous waste assuming that the levels of PCE do not exceed MTCA Method B cleanup level of 1.96 mg/kg. If Ecology approves the request, the soil below MTCA Method B levels could be disposed at a solid waste facility that is regulated under Chapter 173-351 WAC or at a similar Resource Conservation and Recovery Act (RCRA), Subtitle D facility (e.g., Rabanco Roosevelt Regional Landfill). Since our investigation identified PCE concentrations in the site soils well below the MTCA Method B cleanup level, URS assumes that the VOC affected soils can be managed as a non-dangerous waste.

5.0 EVALUATION OF REMEDIAL ALTERNATIVES

5.1 EVALUATION OVERVIEW

URS evaluated remedial alternatives based on the proposed site development indicated by TCC, and the results of this investigation. URS understands that the planned redevelopment of the property will consist of construction of a multi-story building with up to six levels of underground parking. The initial phase of the redevelopment will include demolition of the existing buildings and mass excavation for the building foundation using a shoring system along the property boundary that will likely utilize soldier pile and lagging or other equivalent designs (e.g., soil nailing, shotcrete, etc).

MTCA specifies minimum requirements for evaluating cleanup action alternatives in the State of Washington (WAC 173-340-360), including the following four threshold criteria:

- Protect human health and the environment,
- Comply with cleanup standards (WAC 173-340-700 through 760),
- Comply with applicable state and federal laws (WAC 173-340-710), and
- Provide for compliance monitoring (WAC 173-340-410 and 720 through 760).

MTCA then prescribes that cleanup action alternatives that fulfill the threshold requirements also be evaluated against the following additional requirements (WAC 173-340-360(2) (b)):

- Use permanent solutions to the maximum extent practicable, which considers the following specific elements (WAC 173-340-360(3)):
    - Protectiveness (WAC 173-340-360(3)(f)(i)) -- Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.
    - Permanence (WAC 173-340-360(3)(f)(ii)) -- The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of

irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.

- Cost (WAC 173-340-360(3)(f)(iii)) -- The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate.

- Effectiveness over the long term (WAC 173-340-360(3) (f) (iv)) -- Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.

- Management of short term risks (WAC 173-340-360(3) (f) (v)) -- The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.

- Technical and administrative implementability (WAC 173-340-360(3)(f)(vi)) -- Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.

- Consideration of public concerns (WAC 173-340-360(3) (f) (vii)). This final requirement is evaluated based on public comments received on submitted documents, and is not part of this evaluation.

- Provide for a reasonable restoration time frame (WAC 173-340-360(4)
- Consider public concerns (WAC 173-340-600)

Based upon the results of this limited Phase II investigation, the following remedial alternatives were considered to address the chlorinated VOC affected soils and groundwater:

SOILS

- Excavation and disposal
- Dual phase extraction (soil vapor extraction) with Barrier Wall System
- Soil vapor extraction with Barrier Wall System

GROUNDWATER

- Air Sparging with Barrier Wall System
- In-Situ Chemical Reduction with Barrier Wall System
- In-Situ Chemical Oxidation with Barrier Wall System
- Dual-Phase Extraction (groundwater extraction) with Barrier Wall System
- Foundation Dewatering and Treatment (following building construction)

The primary source of these impacts appears to be the former dry cleaning operation across NE 8th Street to the north. Any remediation alternatives considered for the subject property must take into account the likely continued source of upgradient contamination, the potential for continued groundwater transport onto the subject property, and the proposed site development that includes the removal of site soils to an assumed average depth of 65 feet bgs to property boundaries. In-situ alternatives would need to include a method for addressing the on-going and future migration of impacted groundwater onto the property (e.g., a barrier wall system and/or groundwater extraction system at the upgradient property boundary). Any in-situ technologies that utilized extraction methods (groundwater, soil vapor, or both) would potentially increase the migration rate of upgradient contamination onto the site without an effective barrier wall system. Of the above remedial alternatives evaluated, in-situ alternatives were screened out due to their poor ranking on multiple MTCA "additional requirements" (e.g., long-term effectiveness, technical implementability, etc). The following alternatives were retained as most appropriate:

- Excavation and disposal of impacted soils
- Treatment of impacted groundwater migrating onto the site from the upgradient source, including dewatering and disposal of any contaminated groundwater encountered during soil excavation

Another potential concern associated with VOCs in groundwater that was considered during our evaluation is the potential for vapor intrusion into the proposed building. However, based upon the concentrations of VOCs noted in the groundwater and the proposed use of the subgrade structure as a parking garage, impacts to the indoor air quality are not anticipated as the garage ventilation system would adequately mitigate any minor contribution of VOCs to indoor air within the parking structure. Thus vapor intrusion mitigation measures are not considered to be necessary elements of a complete remedy.

5.2 PREFERRED REMEDIAL ALTERNATIVES

5.2.1. SOIL EXCAVATION

Soil Excavation and Disposal During Foundation Earthwork

During the mass excavation required for the construction of future site structures, impacted soils located within the northwestern portion of the site could be screened using rapid turn-around analytical testing and segregated for offsite disposal at a Subtitle D landfill (e.g., Roosevelt Regional Landfill), assuming that Ecology grants a "contained-out" determination as discussed above. The area of impacted soils (approximately 18,000 square feet [sf]) is depicted on Figure 7. The assumed total depth of excavation is

approximately 65 feet, thus, the total volume of excavated soils in the impacted area is estimated to be approximately 43,000 cubic yards [cy]. Based upon an assumed impacted thickness of approximately 30-feet (15 feet bgs to 45-feet bgs), the volume of impacted soils requiring offsite disposal is estimated to be 20,000-cy. This volume assumes segregating and testing the overburden above the impacted soils during excavation, or additional in place testing (e.g., test pits) following demolition of the building and prior to excavation, in order to reduce the volume and cost of contaminated soil disposal and allow unrestricted alternative handling of those uncontaminated surficial soils.

5.2.2. GROUNDWATER TREATMENT

Groundwater Capture/Treatment During Construction

The quantity of perched groundwater seepage into the proposed excavation is not anticipated to be significant based upon the observations made during this investigation. URS assumes that recommendations regarding the most cost-effective and appropriate means of handling construction dewatering will addressed by the project geotechnical engineer selected by the developer. Shallow perched groundwater within the upper 30 feet of the foundation excavation could be pumped locally, contained in aboveground storage tanks (e.g., Baker Tank), treated in batches by a combination of gravity separation (e.g, suspended solids); air stripping and/or granular activated carbon (GAC) treatment systems, and discharged to the sanitary sewer under a discharge authorization issued by the King County Industrial Waste Program and City of Bellevue sewer connection requirements. The groundwater seepage control design should consider avoidance of vertical migration of contaminated groundwater into the underlying deeper saturated zone which does not appear to be impacted based on prior groundwater sampling and analysis.

Groundwater Capture/Treatment Following Building Construction

Both clean and impacted perched groundwater seepage around the perimeter of the property may be captured by the proposed building footing drain system. The concentrations of chlorinated VOCs in the collected groundwater may be below King County discharge standards. However, in our experience, the discharge permit will require application of best available control technologies (BACT). Typical control technologies could include the addition of air stripping and/or GAC filtration systems to the existing footing drainage discharge. If air stripping is applied, the Puget Sound Clean Air Agency will require permitting and monitoring of the emissions from the air stripper. As mentioned above, the design of the long term seepage control should consider management or avoidance of vertical migration of contaminated groundwater. System design could utilize the dewatering system installed during construction for capture of shallow perched groundwater from migrating vertically to the building footing drain system.

Groundwater Treatment – In-Situ

PCE-impacted media is often treated in-situ by addition of electron donor materials at sites with anaerobic subsurface conditions, and by air sparging and soil vapor extraction at sites with aerobic subsurface conditions. In-situ chemical oxidation can be effective, if the impacted media are saturated and conducive to injection techniques. Air sparging (in limited saturated zones) and soil vapor extraction (in

non-saturated zones) could potentially be applied at the subject property, but the dense subsurface soils and variability in the location of perched groundwater would challenge the application of this technology; i.e. the dense glacial till soils at this site do not appear conducive to successful use of these technologies. In addition, the limited area in which to install air sparging/soil vapor extraction wells/piping would challenge the application of this technology. One possible application of this technology would be the installation of horizontal treatment piping surrounding the foundation at an elevation below the impacted perched groundwater. This system would be installed in conjunction with the excavation shoring system to treat groundwater prior to being captured by the footing drains.

5.3 RECOMMENDATIONS

URS will prepare a remedial action plan (RAP) presenting the selected remedial strategy at the property following review and approval by SRO and TCC. This RAP will be submitted to Ecology under the Voluntary Cleanup Program (VCP) to obtain Ecology's opinion regarding the proposed remedy, which will include a detailed description of the proposed remedial activities and a soil management plan designed to minimize the volume of contaminated soils that need more-costly disposal arrangements. Prior to development of the RAP, URS will conduct a supplemental subsurface investigation to further delineate the lateral and vertical extent of VOCs in site soil and groundwater. URS also advises development of a construction contingency plan to address unknown areas of contamination and the possibility of new discoveries such as USTs or other service station features (e.g., underground piping) that might be encountered during construction earth work activities.

6.0 REFERENCES

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TABLES

Table 1
Sample Location Rationale
Bellevue Corner Property
Sterling Realty Organization
Bellevue, Washington

URS Boring ID	Area of Concern	Media		Analytical Parameter
		Soil	Groundwater	
Existing Well B3/MW-3	Former on-site service station, northern property line, distribution of PCE in shallow groundwater	0	1	NWTPH-Gx and VOCs
URS-MW-1 thru URS-MW-4	Former on-site service station, northern property line, distribution of PCE in shallow groundwater	8	4	NWTPH-Gx and VOCs
URS-SB-1	Former on-site service station, northern property line, distribution of PCE in soil	4	0	NWTPH-Gx and VOCs
URS-SB-2 and URS-SB-4	Former on-site service station, northern property line, distribution of PCE in shallow soil	4	0	NWTPH-Gx and VOCs
URS-SB-3	Former on-site service station, northern property line, distribution of PCE in shallow groundwater and soil	2	1	NWTPH-Gx and VOCs

Notes:
NWTPH-Gx = Northwest Total Petroleum Hydrocarbons Gasoline extended
TBD = To be Determined.
VOCs = volatile organic compounds (EPA Method 8260B)

Table 2
Summary of Soil Analytical Results
Sterling Realty Organization
Bellevue, Washington

Sample ID	Sample Date	Sample Depth (ft bgs)	VOCs (mg/kg)					TPHs (mg/kg)
			Tetrachloroethene	Benzene	Toluene	Ethylbenzene	Xylenes, total	Gasoline-Range
MW-1	8/25/2008	15	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/25/2008	27.5	**0.41**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
MW-2	8/27/2008	15	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/27/2008	27.5	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
MW-3	8/26/2008	17.5	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/26/2008	27.5	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
MW-4	8/26/2008	12.5	**0.17**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/26/2008	30	**0.12**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
SB-1	8/25/2008	10	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/25/2008	30	**0.22**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/25/2008	45	**0.05**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/25/2008	75	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
SB-2	8/25/2008	10	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/25/2008	27.5	**0.07**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
SB-3	8/26/2008	17.5	**0.05**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/26/2008	22.5	**0.07**	0.02 U	0.02 U	0.03 U	0.03 U	10 U
SB-4	8/27/2008	17.5	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
	8/27/2008	30	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	10 U
MTCA Method A Soil Cleanup Level			0.05	0.03	7	6	9	30 / 100 [a]

Notes:
Numbers in **bold** font indicate that the reported result meets or exceeds the MTCA Method A soil cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A values are from Ecology website CLARC tables downloaded September 2008 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
ft bgs - feet below ground surface
U - Compound was analyzed for but not detected above the reporting limit shown.
TPHs - Total petroluem hydrocarbons
VOCs - Volatile organic compounds
[a]The soil cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.

Table 3
Summary of Groundwater Analytical Results
Sterling Realty Organization
Bellevue, Washington

Sample ID	Sample Date	VOCs (ug/L)						TPHs (ug/L)
		Tetrachloroethene	Trichloroethene	Benzene	Toluene	Ethylbenzene	Xylenes, total	Gasoline-Range
SB-3	8/27/2008	**21**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
MW-1	9/10/2008	**340**	**3.5**	1.0 U	1.0 U	1.0 U	1.0 U	100 U
MW-3	9/10/2008	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
B-3/MW-3*	9/10/2008	**88**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
MTCA Method A or B Groundwater Cleanup Level		5 (A) 0.081 (B)	5 (A) 0.11 (B)	5 (A)	1,000 (A)	700 (A)	1,000 (A)	800 / 1,000 (A)[1]

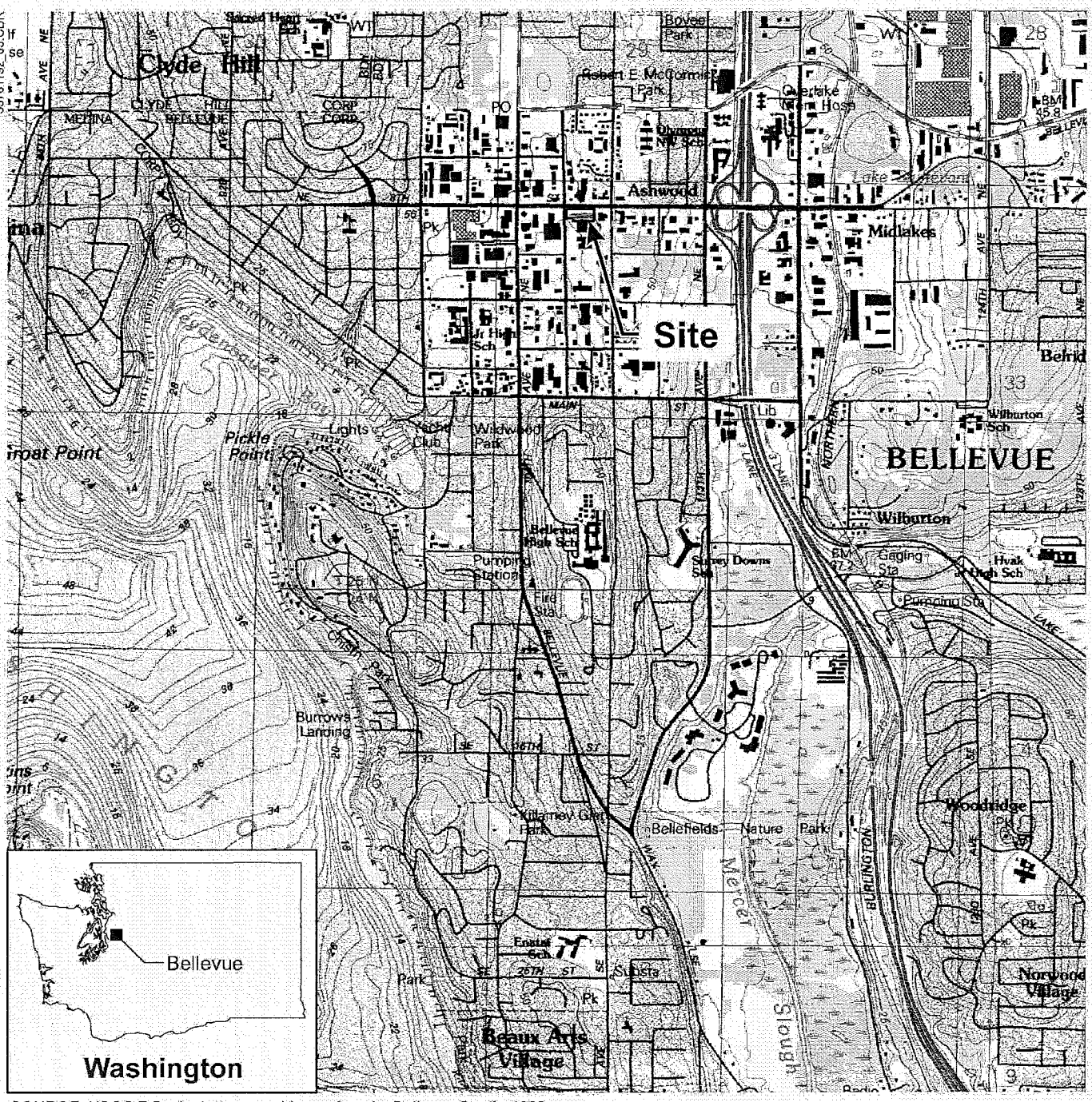
Notes:
Numbers in **bold** font indicate that the reported result meets or exceeds a MTCA cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded September 2008 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
U - Compound was analyzed for but not detected above the reporting limit shown.
[1] The groundwater cleanup level is 1,000 ug/L if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 800 ug/L.
*Terra Associates 2008 Monitoring Well

Table 4
Summary of Monitoring Well Groundwater Elevation Data
Sterling Realty Organization
Bellevue, Washington

Well ID	Well Screen Interval (feet, bgs)	Top of Casing Elevation[1] (feet above datum)	Well Screen Elevation (feet above datum)	Groundwater Depth (feet, bgs)	Groundwater Elevation (feet, msl)
				9/10/08	9/10/08
URS-MW-1	20-30	157.87	127.87 -137.87	26.41	131.46
URS-MW-2	20-30	160.22	130.22 - 140.22	Dry	NA
URS-MW-3	20-30	153.98	123.98 - 133.98	27.36	126.62
URS-MW-4	20-30	152.99	122.99 - 132.99	Dry	NA
B3/MW-3	20-30	158.89	128.89 -138.89	24.68	134.21

Notes:
NA = Not Available
ft, bgs = feet below ground surface
ft, msl = feet above mean sea level
[1] Well casing elevations surveyed by Bush, Roed, and Hitchings on September 10, 2008.
Vertical datum based on City of Bellevue - NAVD 88

FIGURES



SOURCE: USGS 7.5-minute topographic quadrangle, Bellevue South, 1983

0 0.5 1.0

Scale in Miles

Figure 1

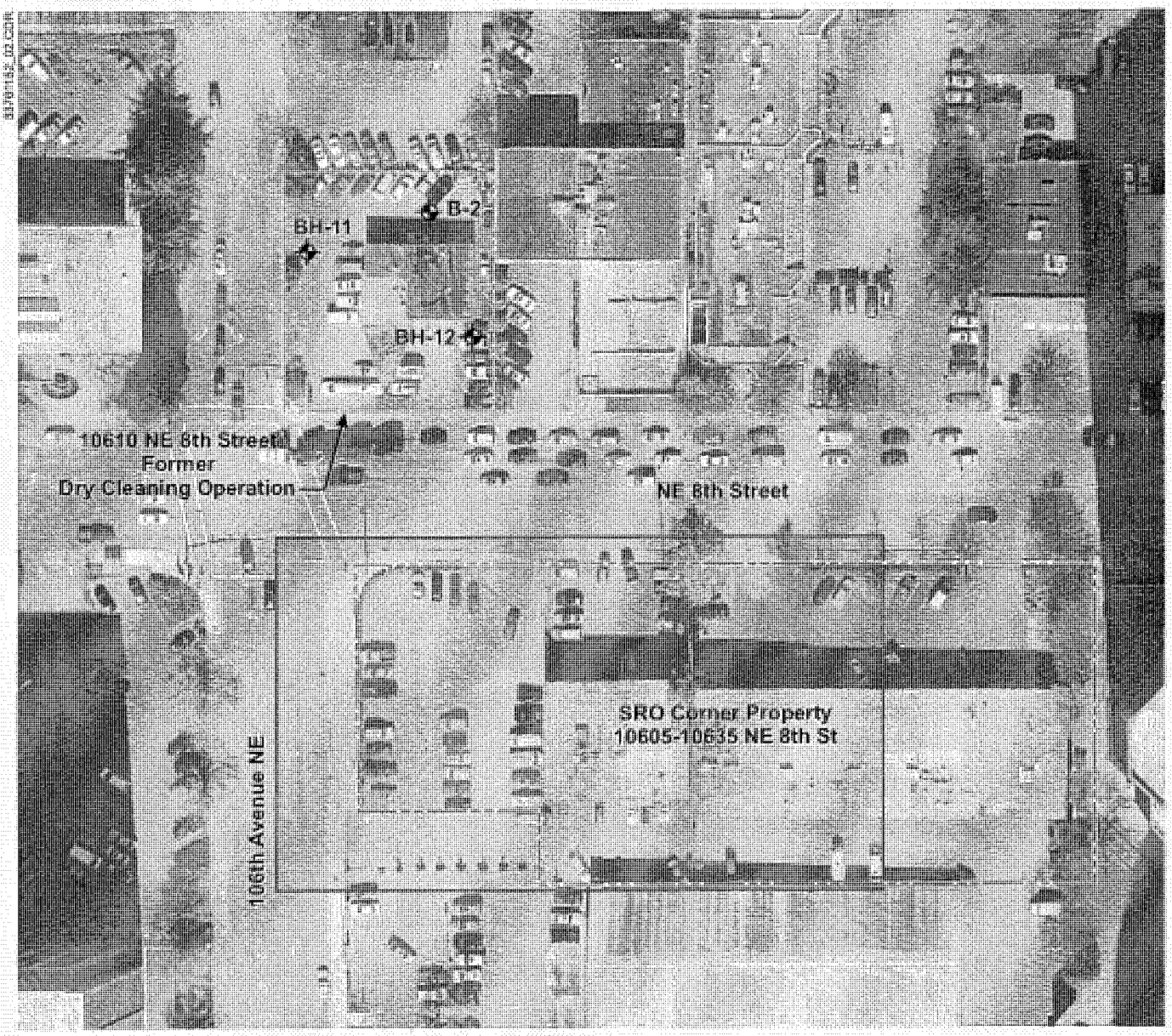
Site Location

Job No. 33761152

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02330



SOURCE: Google Earth Pro

LEGEND

- Subject property boundary
- Groundwater monitoring well location (Golder 2005)
- Former dry cleaner property
- Area of detail (see Figure 3)

N

0 80 160

Approximate Scale in Feet

Job No. 33761152

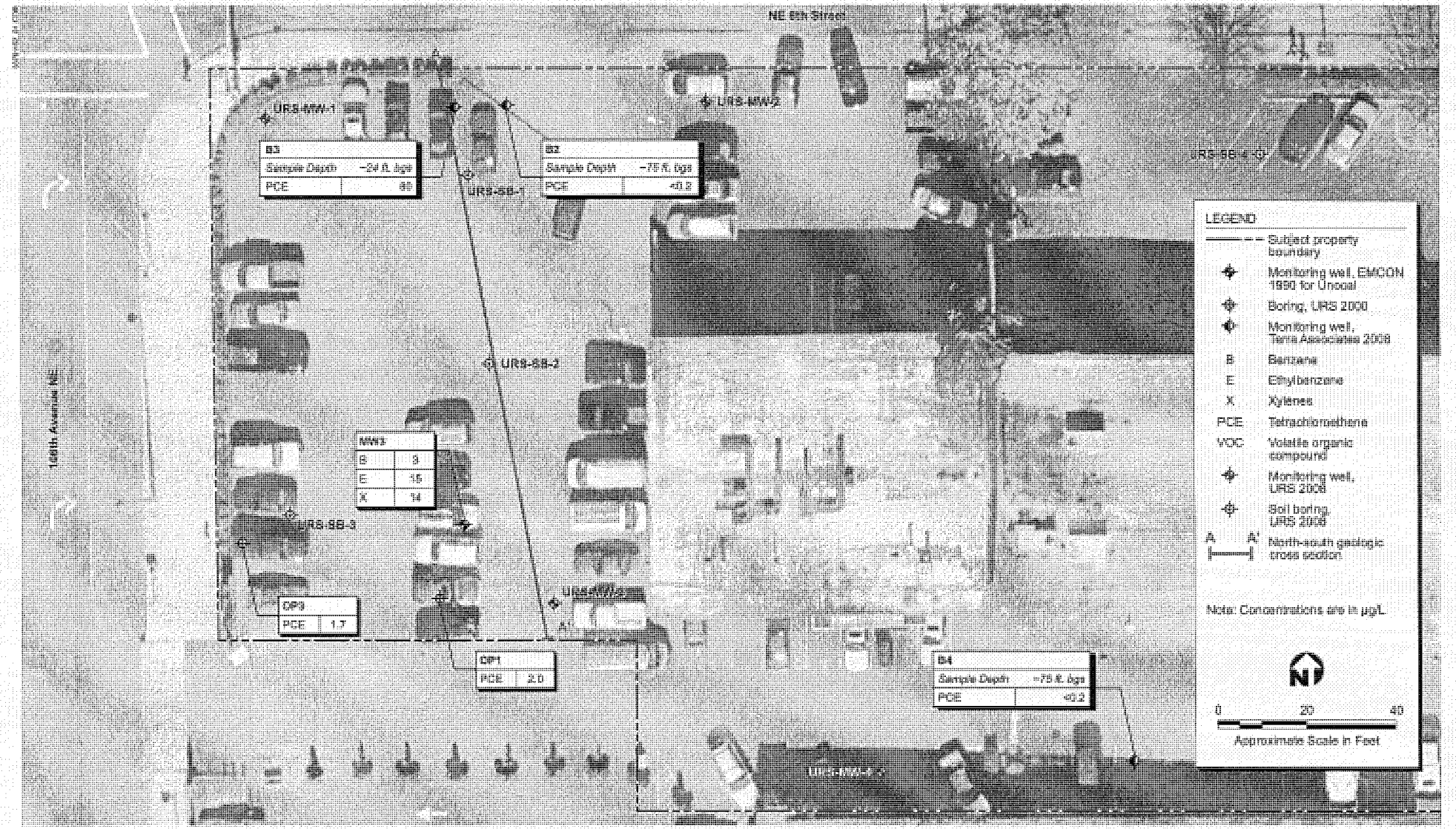
Figure 2

Overview Map

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02331



SOURCE: Google Earth Pro

Job No. 33761152

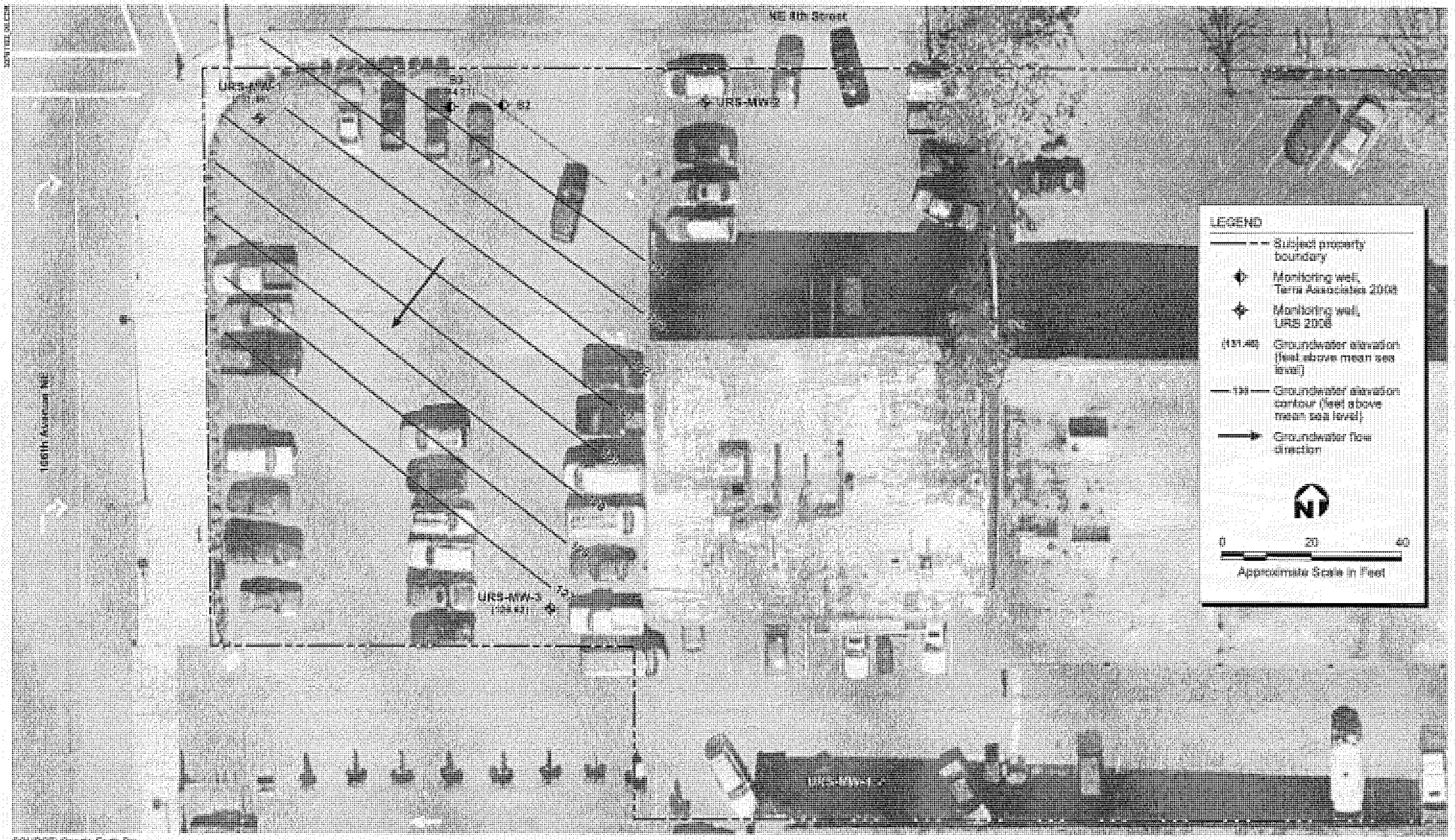
Figure 3

Site Plan and Existing Groundwater VOC Data

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02332



SOURCE: Google Earth Pro

Job No. 33761152

Figure 4

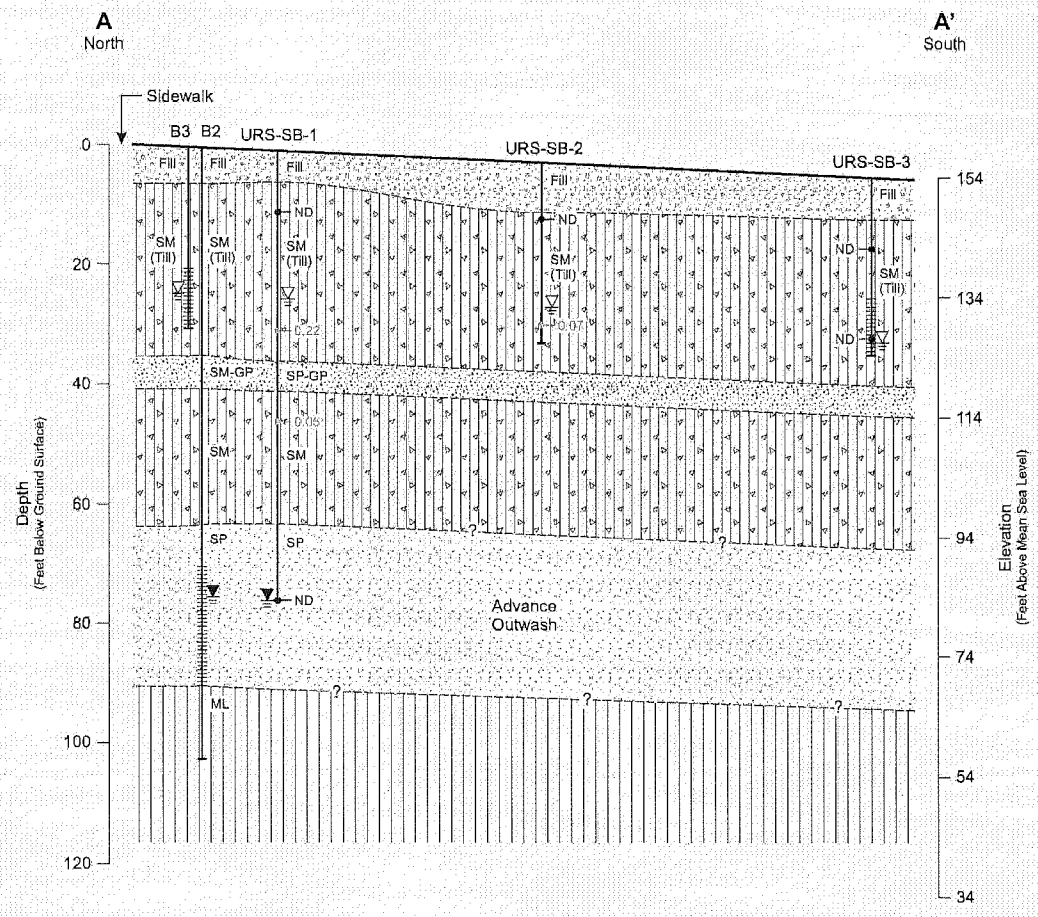
September 10, 2008, Groundwater Elevation Contour Map

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02333

33761152_05.CDR



LEGEND

- 0.07 PCE (tetrachloroethene) in soil (mg/kg)
- ND PCE not detected in soil
- Well screen interval
- Perched groundwater elevation
- Regional groundwater elevation

0 20 40

Horizontal and Vertical Scale in Feet

Job No. 33761152

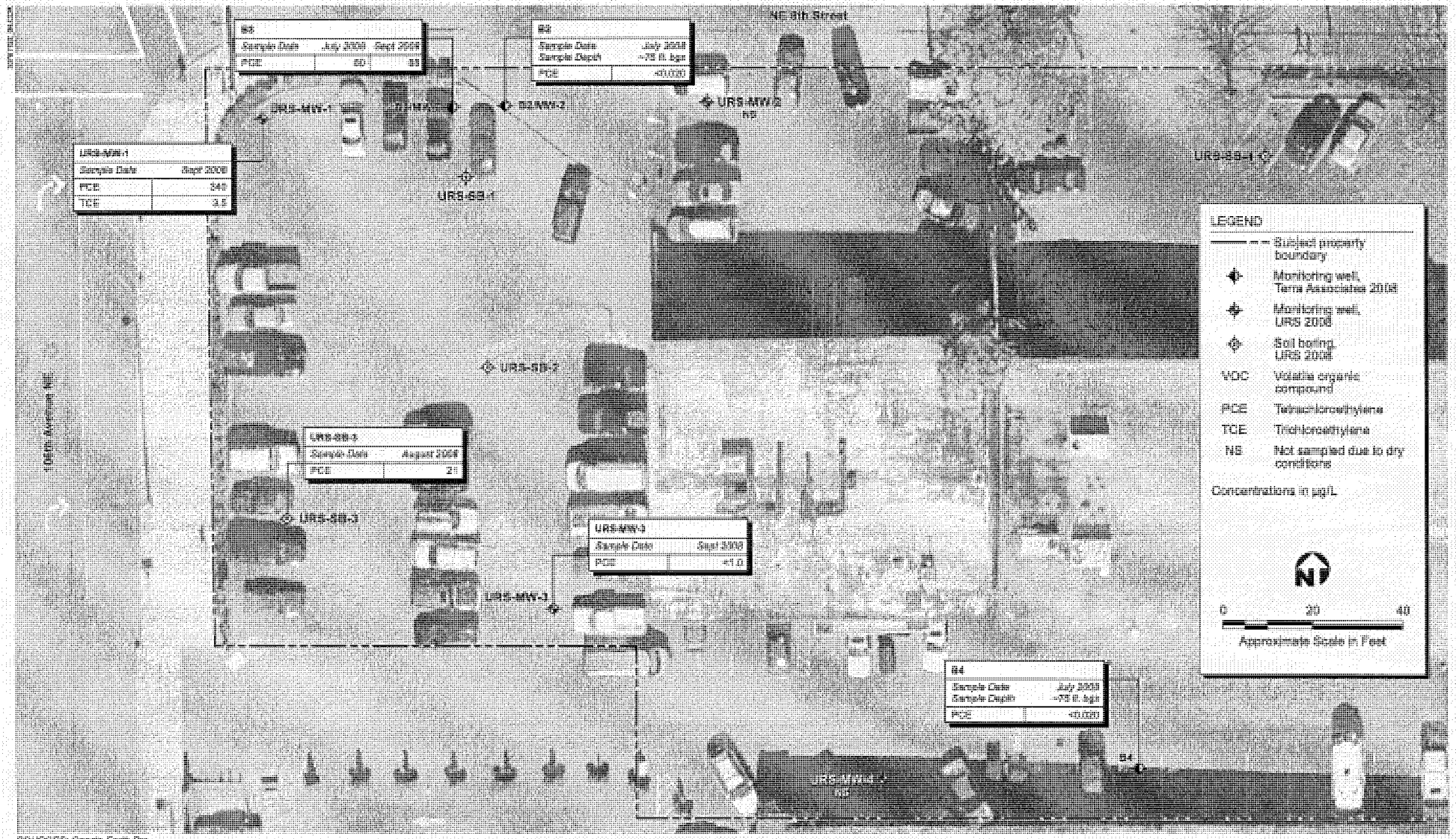
Figure 5

North-South Geologic Cross Section

Sterling Realty Organization
Bellevue, Washington

URS

SRO_02334



SOURCES: Google Earth Pro
*July 2008 data from Terra Associates

Job No. 33761152

Figure 6
2008 Groundwater VOC Data

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02335

SOURCES: Google Earth Pro

Job No. 33761152

Figure 7

Estimated Area of VOC-Affected Soil

URS

Sterling Realty Organization
Bellevue, Washington

SRO_02336

APPENDIX A

SELECTED PORTIONS OF PRIOR ENVIRONMENTAL REPORTS

Golder Associates Inc.

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Redmond, WA USA 98052-3333
Telephone (425) 883-0777
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www.golder.com

Golder Associates

May 9, 2003

Our Ref: 033-1334.3000

Wasatch Acquisitions & Capital, Inc.
399 North Main; Suite 200
Logan, Utah 84321

Attention: Mr. Tony Johnson

RE: INDOOR AIR QUALITY REPORT
SUPERBLOCK - II SITE
BELLEVUE, WASHINGTON

Dear Tony:

Golder Associates Incorporated (Golder) is pleased to present this report for indoor air quality (IAQ) testing we conducted at the Thinker Toys parcel at the Superblock – II property (i.e., site). The subject site is located at 10610 NE 8th Street in Bellevue, Washington. We conducted this work as an amendment to the contract (Golder Terms & Conditions) already established with Wasatch Acquisitions & Capital, Inc. for the site (Golder project 033-1334)

We are using the term "Superblock – II" simply to denote the two site areas that are being treated separately for purposes of the Phase II ESA. Superblock – I covers all of the Superblock property proper, minus the subject Thinker Toys parcel in the southwest corner of Superblock, at 10610 NE 8th Street (see Figure 1). Findings for Superblock - I were documented in another report submitted on March 11, 2003 specific for that property. A Phase II ESA report for the subject Superblock -II site will be submitted to Wasatch Acquisitions & Capital, Inc. that will include Golder's evaluation for all phases of work on the subject property.

The IAQ work was conducted because of tetrachloroethylene (PCE), and trichloroethylene (TCE – a weathered by-product of PCE) found in soil, perched groundwater and soil gas on the property. The actual release mechanism, location and date for PCE and TCE is not known. However, since PCE was a common dry cleaning solvent, it may be associated with historic dry cleaning operations onsite (in the mid-1970s). The IAQ testing was designed to determine if PCE or any of its weathered analogues can be found in air inside the subject building, even though its presence below the building's concrete slab is not confirmed to date.

SCOPE OF WORK

The following provides a description of the scope of work for this task:

Indoor Air Quality Assessment

An IAQ assessment was conducted inside the Thinker Toys building on two separate occasions. Testing was conducted to determine if PCE and its weathered by-products (TCE, and 1,2-DCE, 1,1-DCE and vinyl chloride) are present inside the building. The following provides a summary of the tasks conducted.

- Use of 6-liter SUMA canisters to collect indoor air samples in three locations inside the building. Sampling occurred on Thursday April 17, 2003 and Tuesday April 22, 2003. Three SUMA canisters were placed inside the store and air was collected through a flow controller gauge attached to each SUMA over a four-hour period from 06:00 and 10:00 during each sampling event, before Thinker Toys opened for business. The SUMA air canisters were metered to collect air over a four hour interval to easily extrapolate an 8-hour occupational exposure, as required for comparison to Permissible Exposure Levels (PELs) established by OSHA and adopted by the Washington Department of Labor & Industries (L&I). A four hour collection time provides a realistic representation of conditions during a regular work day, as opposed to a short duration or 'grab" sample which only represents a few seconds of the eight hour work day.
- Use of a SUMA canister to collected one ambient (outdoor) air sample for each of two sampling events, for comparison purposes. This sample was collected on the northern side of the building.
- All SUMA canisters were evaluated by EPA laboratory analytical method TO-15 GC/MS-SIM, for low level detection limits.

Appendix A provides our field reports for the two sampling events and Figure 2 identifies the IAQ sampling locations.

RESULTS

The results for both tests are provided in Appendix B and summarized in Table 1, below:

TABLE 1

Summary of IAQ Sampling – Thinker Toys Site

April 17, 2003 Sampling				
Chemical of Concern	**Sample Number**			
	Indoor	**Indoor**	**Indoor**	**Ambient (outdoor)**
	AA-1	**AA-2**	**AA-3**	**AA-4**
	µg/m3	µg/m3	µg/m3	µg/m3
Tetrachloroethene (PCE)	440	420	480	0.31
Trichloroethene (TCE)	6.3	6.6	6.3	ND
cis-1,2-Dichloroethene (cis-1,2-DCE)	16	15	15	ND
trans-1,2-Dichloroethene (trans-1,2-DCE)	ND	ND	ND	ND
1,1-Dichloroethene (1,1-DCE)	ND	0.17	ND	ND
Vinyl Chloride	ND	ND	ND	ND
April 22, 2003 Sampling				
	Indoor	**Indoor**	**Indoor**	**Ambient (outdoor)**
	AA-21	**AA-22**	**AA-23**	**AA-24**
	µg/m3	µg/m3	µg/m3	µg/m3
Tetrachloroethene (PCE)	1400	1500	1400	1.4
Trichloroethene (TCE)	13	13	13	ND
cis-1,2-Dichloroethene (cis-1,2-DCE)	32	34	34	ND
trans-1,2-Dichloroethene (trans-1,2-DCE)	ND	ND	ND	ND
1,1-Dichloroethene (1,1-DCE)	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND

AVERAGE CONCENTRATIONS (all samples from both sampling events) in µg/m3		
Analyte	**Average Indoor Concentration**	**Average Outdoor Concentration**
PCE	940	1.85
TCE	10	ND
cis-1,2-DCE	24	ND
1, 1-DCE	0.17	ND
ND – Not Detected above detection limit		

Table 2 provides a comparison of the average values of each chemical of concern versus the applicable L&I regulatory "acceptable" levels, or PEL. Concentrations measured below these levels represent exposures where no observed adverse effects are expected for the chemical of concern. Of note, the concentrations posted are extrapolated from the four-hour air sample to an 8-hour exposure by simply doubling the results provided by the laboratory for a Time Weighted Average (TWA). This was done to directly compare the results to PEL values, which are based on TWAs.

TABLE 2

Comparison of PCE, TCE and cis-1,2-DCE vs. L&I Regulatory Criteria

WA L&I Criteria for Workers (a)	PCE	TCE	cis-1,2-DCE	1, 1-DCE
L&I Permissible Exposure Level (PEL) in ppmv (b)	25	50	200	1
PEL expressed as µg/m3 (b)	169,500	301,500	794,000	4,000
Average Indoor Air Concentration (µg/m3 Extrapolated for 8 hrs)	940	10	24	0.17
Difference PEL/Ave Indoor Air Concentration (unitless) (d)	180	30,150	33,083	23,530

a - Permissible Exposure Level (PEL)
b - ppmv is parts per million volume - a criteria that does not include standard temperature/pressure, chemical-specific volatility (i.e., Henry's Law Constant), and conversion factor of 1000. See NIOSH Pocket Guide for conversion factors from ppmv.
c - Converted mg/m3 to µg/m3 to compare vs. results.
d - This value represents the amount the Ave. indoor air concentration is LOWER than the L&I PEL.

Table 3 provides a comparison of the average values of each chemical of concern versus the applicable Washington Department of Ecology (DOE) or the US EPA's regulatory "acceptable" levels. Concentrations below these values represent unacceptable long-term or chronic carcinogenic risk. The concentrations used here are the average values, not TWA-based values.

TABLE 3

Comparison of PCE, TCE and cis-1,2-DCE vs. DOE / EPA Regulatory Criteria

WA DOE and/or US EPA Cleanup Criteria	PCE	TCE	cis-1,2-DCE	1, 1-DCE
Ecology - MTCA Method C (µg/m3)	-	0.515	-	0.5
EPA Region 9 PRG (µg/m3) (a)	0.67	0.017	37	-
Average Indoor Air Concentration (µg/m3)	940	10	24	0.17
Difference Cleanup Criteria / Ave Indoor Air Concentration (unitless) (b)	1403	588	0.6	0.34

a – EPA Region 9 Preliminary Remediation Goal (PRG) value used when no DOE MTCA cleanup criteria exists. This criteria is NOT directly applicable to Washington State, but does represent.
b - Value represents the amount the Ave. indoor air concentration is HIGHER than the DOE/EPA Cleanup Criteria.

CONCLUSIONS

The results of the two indoor air quality sampling events show there are exceedances of WA DOE and US EPA cleanup criteria for chronic exposures to PCE and TCE in indoor air at the Thinker Toys site. However, the average values (and highest values) of PCE, TCE and cis-1,2-DCE do not exceed the permissible exposure levels considered safe for workers by L&I. The L&I PEL values are consistent with Federal OSHA PEL values.

The difference in indoor air concentrations between April 17 and April 22, 2003 are not due to significant temperature, barometric pressure differences since the air temperatures and barometric pressures were very similar between on both dates. In addition, the sampling locations, sampling procedures, time of day, and ventilation conditions were very similar for both sampling events. Therefore the difference appears due to a natural variation for days where barometric pressures are considered moderate at app. 29.8 inches Mercury.

Of note, the average concentration of the ambient air samples collected on the north side of the Thinker Toys building (See Figure 2) is also slightly above the EPA Region 9 PRG concentration of 0.67 µg/m3. However, this concentration is less than measured PCE concentrations common for urban environments according a 1982 study published by Brodzinky and Singh and included in the ATSDR Toxicological Profile for Tetrachloroethylene, September 1997 – see http://www.atsdr.cdc.gov/toxprofiles/tp18.html). This document (Section 5.4) identifies the average measured concentration of PCE (or Perc) in urhan and suburban areas to be 0.79 ppb or 5.3 µg/m3, significantly higher than the average concentration found outside the Thinker Toys site. Therefore, the average concentration of 1.85 µg/m3 for PCE outside the Thinker Toys site (see Table 1) does not represent an unacceptable incremental risk to the public.

We have provided the ATSDR ToxFAQs data for PCE, TCE and 1,2-DCE in Appendix C. This information is helpful for understanding health issues related to these compounds.

RECOMMENDATIONS

Given these results, workers and others potentially exposed to indoor air in the Thinker Toys store should be informed of these results and actions should be taken to reduce these concentrations and thereby reduce potential exposures. Also Golder considers this condition to represent a "Discoverable" release according to MTCA (WAC 173-340-300). All of the reporting requirements in WAC 173-303-300 would be in effect for the site owner.

Several remediation actions may be considered to reduce indoor air concentrations, including from simple ventilation changes to more complex soil vapor extraction and treatment technologies to tenant relocation and building demolition. Golder will be glad to assist Wasatch Acquisitions in reporting this release to WA DOE and providing remediation design, construction and monitoring.

If you have any questions concerning this report please contact us at your earliest convenience at (425) 883-0777.

Sincerely,

GOLDER ASSOCIATES INC.

William J. Beck
Associate and
Senior Project Manager

Douglas Morell, PhD
Principal Hydrogeologist

FIGURES

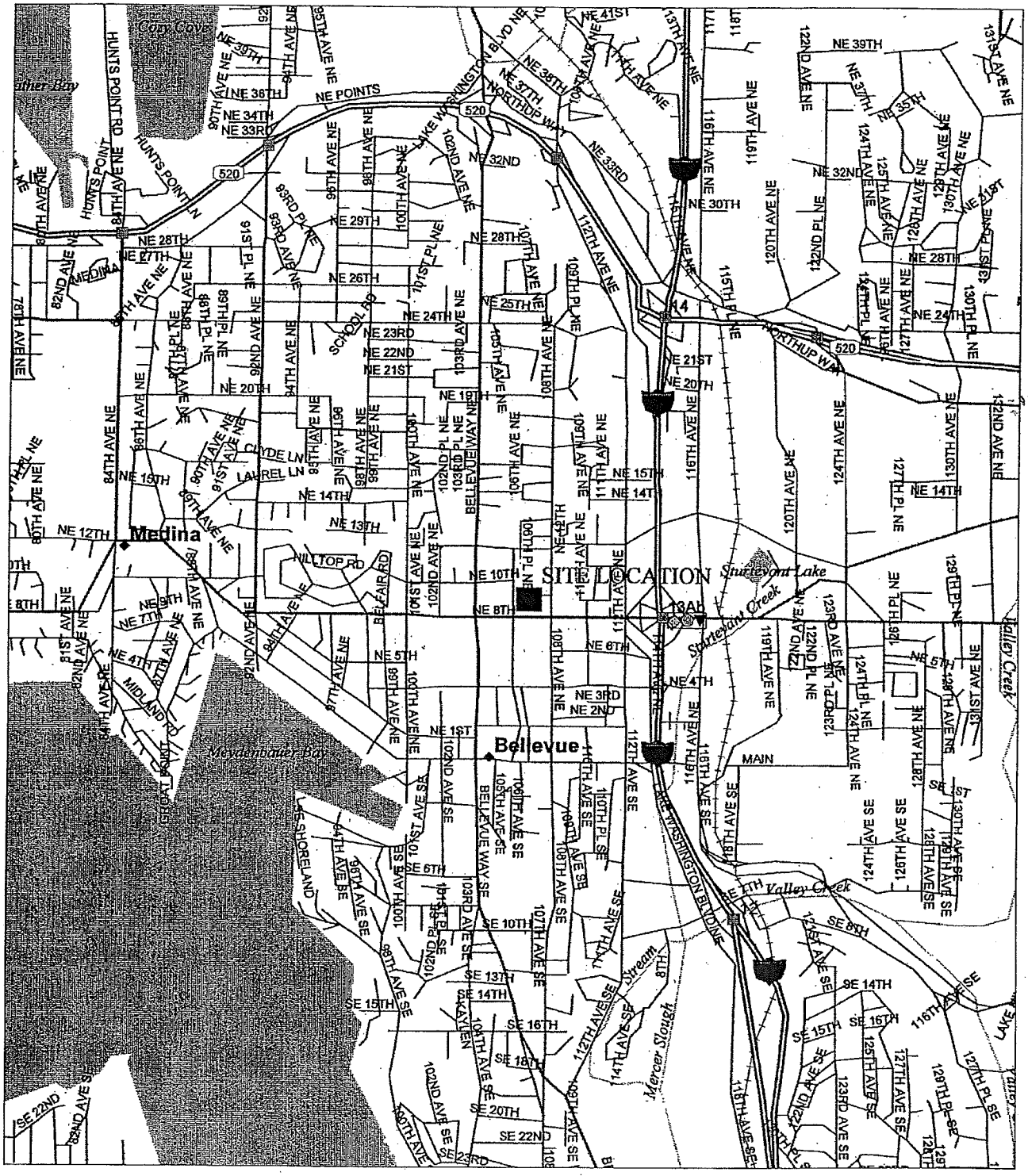

FIGURE 1
SUPERBLOCK LOCATION MAP
G2/SUPERBLOCK/WA

DRAWING NO. 03313341000/g10.fh9 DATE 05/09/03 DRAWN BY EFS

Golder Associates

SRO_02345

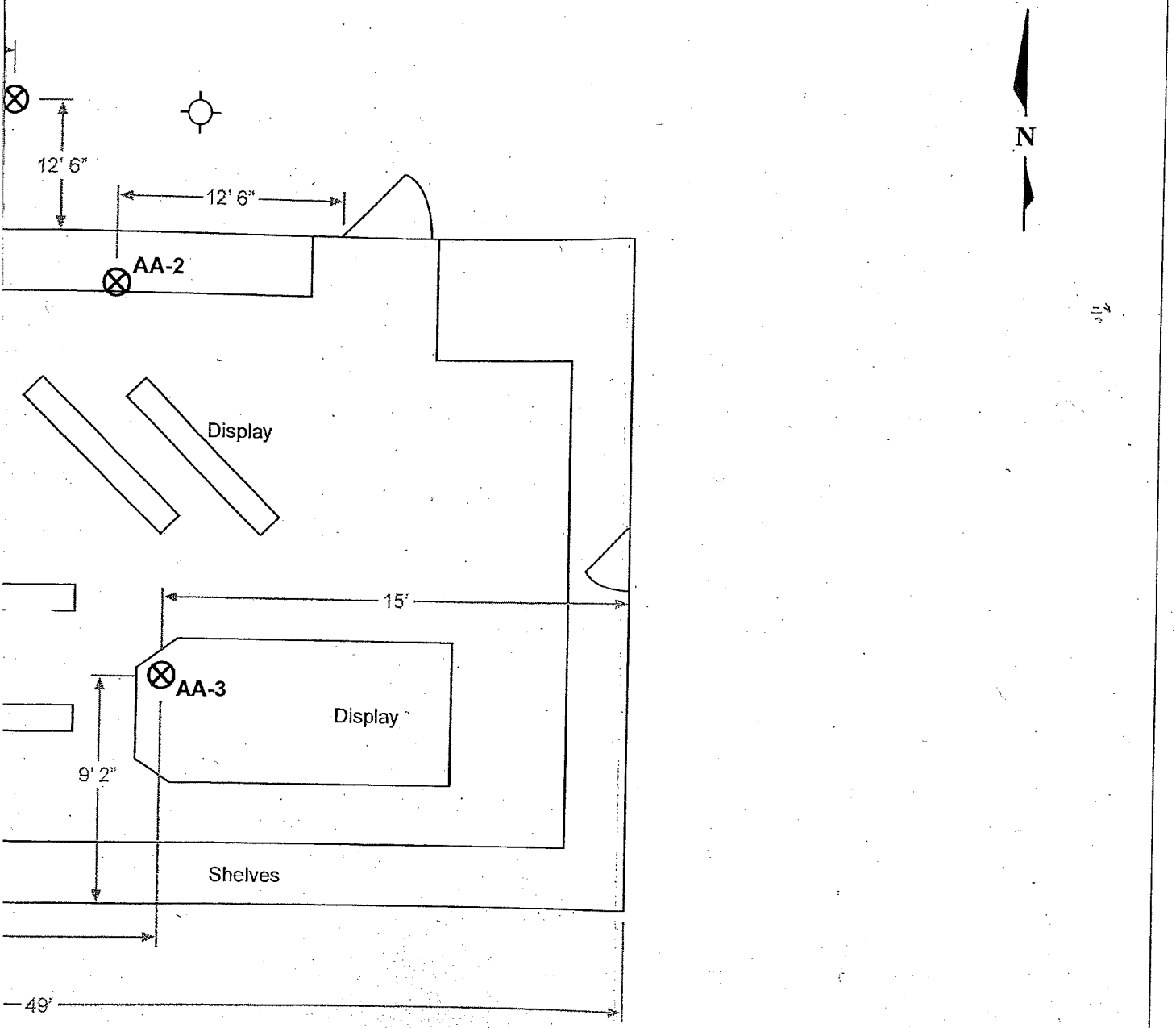

FIGURE **2**
THINKER TOYS SITE
INDOOR AIR QUALITY SAMPLING LOCATIONS
WA&C/BELLEVUE SUPERBLOCK ESA II/WA

Golder Associates

1.0 SITE DESCRIPTION

The subject property is located at 10610 NE 8th Avenue, in downtown Bellevue, Washington. The subject property is at the northeast corner of the intersection of NE 8th Street and 106th Avenue NE. This is a mixed-use area with high rise buildings, small retail shops, strip malls, office buildings, and multi-family residential areas. The subject property is currently vacant, but has been used in the past as a gasoline station, as a dry cleaner, and for retail. Figure 1 shows the location of the subject property.

Golder Associates Inc. (Golder) conducted a Phase II Environmental Site Assessment (ESA) at the subject property along with other parcels that are identified as the "Superblock" site. Previous reports for the subject property have used the names "Superblock II" and the "former Thinker Toys Site". This is a property bounded by NE 8th Street and NE 10th Street (to the south and north), and 108th Avenue NE and 106th Avenue NE (to the east and west). A separate report was submitted for the other parcels in the Superblock site. Therefore, there are gaps in the sequence of sample numbers included in this report, since some of the Phase II ESA samples collected were located at other locations.

Golder also conducted a Phase I ESA and a Geotechnical Engineering report for the Superblock site, including the subject property in 1998. Golder also conducted an indoor air quality assessment for the building on the subject property in 2003. Earlier investigations were conducted by other consultants for a former site owner. These reports are summarized in the Golder's Phase I ESA. The earlier reports only documented that there were some USTs removed from the site and that 78 tons of diesel contaminated soil were excavated during the removal of the diesel UST onsite.

The subject property is completely paved or covered by a concrete slab underlying the building. There are a few planter areas along the perimeter of the site that are unpaved. The site is at an elevation of approximately 175 feet above sea level. The area is characteristically marked by low hills and valleys. The topographical relief in the area ranges between 25 and 300 feet above sea level. The area around the subject properties is marked by a shallow valley that trends north/south. The subject property is located on a south facing "ridge" of a hillside. The municipal storm water system provides drainage for the majority of the site.

The area topography was formed by glacial activity approximately 10,000 to 15,000 years ago. Till was deposited as ground moraine and commonly ranges from several inches to tens of feet thick (Waldron, 1962). Till is commonly composed of a heterogeneous mixture of light gray silt, sand and gravel, the exact composition of which differs from one location to another. The hydraulic conductivity of till is relatively low. Due to the low hydraulic conductivity of the till, perched groundwater is often found along its upper contact.

Based on borings drilled on the subject property, the site is underlain by a sequence of dense weathered till over very dense unweathered till. Weathered till likely occupies the top three to five feet of the till unit. The weathered till in the Bellevue area is commonly slightly oxidized and generally less dense than the unweathered till. The till is consistently olive gray, and usually characterized as a silty sand with varying amounts of gravel. The till lies on fine to coarse glacial outwash sand deposits that are greater than 25 feet thick.

The regional water table aquifer in the area is reported to be at a depth that ranges between 50 to 75 feet bgs. Based on the topography and groundwater levels at the site, groundwater flow in the general area is anticipated to be to the southwest toward Lake Washington; although the true groundwater flow direction is unknown and can only be determined through surveying at least 3

groundwater monitoring wells. A shallow groundwater zone is perched on top of till onsite at depths ranging from approximately 14 feet to 18 feet bgs onsite. Preliminary results indicate that the direction of groundwater flow appears southerly in this perched zone, but may vary seasonally. However, a survey of the wells onsite to U.S.G.S. beachmarks has not been completed on site. The depth to the water table and the direction of groundwater flow may fluctuate in response to seasonal recharge.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the Phase II ESA conducted at site located at 10610 NE 8th Street suggest the following conclusions:

1. Soil and groundwater have been impacted by a release of PCE and a few of its breakdown products at the Subject Property. The results indicate that chlorinated solvent contamination is present from a depth interval of approximately 7 to approximately 18 feet bgs, centering in the approximate middle of the Subject Property.
2. The source, date, mechanism, and nature of the chlorinated solvent release onsite are currently unknown. According to historical phone directories, a dry cleaning operation was located at this address in 1975, 1980, and 1985. There were no other records found or information obtained during our investigation that confirms if the chlorinated solvents released onsite was from fresh product or spent materials, where the release occurred, and when the release(s) occurred.
3. Chlorinated solvents were detected inside the former Thinker Toys building on site. The building is currently vacant and secured, and there are no future plans for occupancy in its current state. (See Golder's Indoor Air quality assessment for further information on this pathway).
4. Currently, it is uncertain whether soil or groundwater impacts exist beyond the Subject Property. Elevated levels of chlorinated solvents were detected in soil and groundwater in locations near the site perimeter. It is also uncertain whether the site's perched groundwater has impacted the deeper regional aquifer.
5. Golder understands that an independent cleanup action is planned to address known contamination issues on site during future site redevelopment. During redevelopment, the owner plans on addressing current data gaps and remediating known chlorinated solvent contamination.

Golder recommends that Wasatch Management and Development, LLC reports the subject property to the Washington Department of Ecology (Ecology) according to the discovery requirements of the Model Toxics Control Act (MTCA - WAC 173-340-300). To do this, we recommend that Wasatch review and submit this report to Ecology for the subject parcel.

H

THINKER TOYS
BELLEVUE
HZW 5.4.1

WAH000026182
2005

TAB 458041/04335TO

012364

4/28/05 1:30 PM	William Beck Golder Associates 425.882.0777	Dean Yasuda	WB called DDY to discuss Thinker Toys contained out determination request. DDY: Drums of GW and decontamination water are DW. High PCE concentrations in GW samples and decontamination water is a process waste contaminated with F002 listed waste. Drums of soil can be sampled for CVOCs or manage as DW. There is no shallow 0-7.5 foot bgs soil data from the borings to characterize what is likely to be the highest concentrations of F002 listed constituents in the shallow soils. Soil gas data showed high PCE concentrations also expect releases from the former dry cleaner to migrate from the ground surface down. High PCE groundwater concentrations in the three groundwater wells also suggests releases from the dry cleaner in the shallow soils. Ecology does not have enough data to be able to rule out high PCE concentrations in the soils at shallow depth below the former dry cleaner and therefore cannot grant a contained out determination. The deeper soils >7.5' bgs have soil boring sample analytical data to support low concentrations of PCE and daughter products. The drums of PCE contaminated soils on-site are beyond the 90-day DW accumulation time limit. Your client needs to act on these drums immediately, since they all contains F002 listed wastes unless Ecology grants a contained out determination in writing after receipt of additional analytical data to support this decision. Analytical data for the soil boring samples was dated January 2003. Need an EPA HW ID number to send the drums of soil and groundwater off as DW. WB: owner mailing address: BV Holdings, LLC Attention: Bret Rigby 399 North Main, Suite 200 Logan, Utah 84321.

Thinker Toys
HZW S.Y.I
Contained Out Determination

Central Files copy

Thinker Toys
HZW § 4.1
Contained Out
Determination

Golder Associates Inc.

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Telephone (425) 883-0777
Fax (425) 882-5498
www.golder.com

Golder Associates

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DEPT OF ECOLOGY

March 31, 2005

Our ref: 033-1334.1000

Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Former Thinker Toys

Attention: Mr. Dean Yasuda

RE: REQUEST FOR "CONTAINED IN" DETERMINATION
10610 NE 8TH STREET SITE
BELLEVUE, WASHINGTON

Dear Mr. Yasuda:

On behalf of Wasatch Development Associates (Wasatch), Golder Associates Inc. (Golder) is pleased to submit this request for a "Contained In" determination for the former Thinker Toys site located at 10610 NE 8th Street in downtown Bellevue, Washington (i.e., the Subject Property).

The purpose of this letter is to provide the Washington Department of Ecology (Ecology) with sufficient information on the site to allow you to determine that 1) Investigation derived waste (IDW) soils and groundwater generated during site investigations be considered a Non-Hazardous Waste according to the United States Environmental Protection Agency's (EPA) "Contained In" policy; and 2) Waste materials generated from soils excavated onsite and groundwater collected onsite during future site redevelopment also qualify as Non-Hazardous waste.

The following sections provide background information on the Subject Property, a summary of Phase II ESA data for the Subject Property, a description of the future Compliance Monitoring Plan for the Subject Property, and a summary and request for a Contained-In determination for current IDW and future waste material generated from the Subject Property.

Background Information

The Subject Property is located at 10610 NE 8th Street in downtown Bellevue, Washington. The Subject Property is at the northeast corner of the intersection of NE 8th Street and 106th Avenue NE. This is a mixed-use area with high rise buildings, small retail shops, strip malls, office buildings, and multi-family residential areas. The Subject Property is currently vacant, but has been used in the past as a gasoline station, as a dry cleaner, and for retail. Figure 1 shows the location of the Subject Property.

The Subject Property is completely paved or covered by a concrete slab underlying the building. There are a few planter areas along the perimeter of the site that are unpaved. The site is at an elevation of approximately 175 feet above sea level. Based on borings drilled on the Subject Property, the site is underlain by a sequence of dense weathered till over very dense unweathered till. Weathered till likely occupies the top three to five feet of the till unit. The till is consistently olive gray, and usually characterized as a silty sand with varying amounts of gravel. The till lies on fine to coarse glacial outwash sand deposits that are greater than 25 feet thick

Golder conducted a Phase II Environmental Site Assessment (ESA) at the Subject Property along with other parcels that are identified as the "Superblock" site. The "Superblock" is so named because of the size of the overall set of parcels bounded by NE 8th Street and NE 10th Street (to the south and north), and 108th Avenue NE and 106th Avenue NE (to the east and west). Two separate Phase II ESA reports were submitted representing the Superblock site. One report is for the Subject Property and the other for the other parcels on the block. They were separated because the contamination noted on the Subject Property appears focused to this area.

Golder also conducted a Phase I ESA and a Geotechnical Engineering report for the Superblock site, including the Subject Property. In addition, Golder conducted an indoor air quality assessment for the building on the Subject Property. Earlier investigations were conducted by other consultants for other site owners. The earlier reports only documented that there were some USTs removed from the site and that 78 tons of diesel contaminated soil were excavated during the removal of the diesel UST onsite. PCE and related soil and groundwater contamination was noted during the more recent Phase II ESA on the Subject Property.

Summary of the Phase II ESA Data for the Subject Property

A total of 5 soil gas samples were collected from beneath the Subject Property and analyzed for volatiles (see Figure 2 for sample locations). Tetrachloroethene (PCE) and its breakdown product Trichloroethene (TCE) were detected in one sample (SG-4) collected in the vicinity of BH-5. PCE alone was detected in 4 of the 5 samples collected from the site. PCE concentrations ranged from non-detect near BH-1 to 40,000 parts per billion by volume (PPBV) near BH-5. TCE was detected in the one location at a concentration of 320 ppbv. In addition, toluene was observed in two samples (SG-3 and SG-5), both of which were collected in the vicinity of BH-1. Xylenes were also detected in sample SG-5. The results of the soil gas survey are presented in the attached Table 1.

A total of 23 soil samples were collected from 8 hollow stem auger borings drilled at the Subject Property. Selected soil samples collected from these borings were analyzed for the following contaminants; total petroleum hydrocarbons (TPH) as gasoline, oil, and diesel (both by test methods TPH-HCID and NWTPH-DX) and volatile organic compounds (test method 8260B). None of the samples analyzed contained concentrations of TPH above the method detection limit.

Sixteen of the soil samples collected from these borings had PCE at concentrations above the laboratory's practical quantitation limit (PQL). Concentrations ranged from 0.0015 mg/kg in S-4 (BH-3) to 2.1 mg/kg in S-2 (BH-5). Only 3 of the 15 soil samples exhibited PCE concentrations that exceeded the MTCA Method A or B cleanup criteria of 0.05 mg/kg. These samples are identified as S-2 (BH-4) which contained PCE at 0.061 mg/kg, S-2 (BH-5) which contained PCE at 2.1 mg/kg, and S-11 (BH-11) which contained PCE at 0.093 mg/kg. The PCE breakdown products TCE and cis-1,2-Dichloroethene (DCE) were also detected below MTCA criteria in S-2 (BH-5) and S-11 (BH-11). TCE was the lone breakdown product detected in S-5 (BH-11). 2-Butanone was detected in sample S-2 (BH-1) at a concentration of 0.0057 mg/kg, far below the MTCA cleanup criteria of 48,000

mg/kg. Similarly, acetone was detected in samples S-2 (BH-2) and S-2 (BH-5) at concentrations of 0.07 and .0057 mg/kg respectively, far below the MTCA cleanup criteria of 800 mg/kg.

Three groundwater monitoring wells were installed in the upper aquifer or perched water zone in accordance with Ecology's requirements for resource protection wells. Groundwater samples collected from these wells indicated the presence of PCE in all three wells and the breakdown products TCE and DCE in two of the three (B2 and BH12). Concentrations of PCE in groundwater sampled ranged from 0.021 mg/L to 0.640 mg/L. Cis-1,2-DCE and TCE were also detected in groundwater samples, but at trace levels (see Table 3). TPH as gasoline, oil, or diesel was not observed in any of the groundwater samples analyzed.

Future Compliance Monitoring Plan

Prior to future site redevelopment, Wasatch would prepare a Compliance Monitoring Plan (CMP) for chlorinated solvent contaminated soils and groundwater to provide site workers, contractors, Ecology, Seattle Metro, and other appropriate agencies with site specific plans to manage any contaminated soil and groundwater that may be encountered during the demolition, excavation, and construction activities at the site. The CMP will address agency notification, soil handling procedures, site dewatering and groundwater management, health and safety protocols, field monitoring and screening, confirmation sampling and testing, and reporting.

Summary and Request for Contained-In Determination

As previously stated, we are seeking a "Contained In" determination for the following:

- The approximately twenty 55-gallon drums currently stored onsite that contain IDW generated during the Phase II ESA for the Subject Property. The IDW contains soil cuttings generated from the soil borings advanced and purge water from the groundwater monitoring wells developed during the Phase II ESA. The contents of the drums are characterized based on the analytical results from the Phase II ESA field investigation and are not based on soil or purge water sampling from within the drums. Given that the contents of the subject IDW drums contain a mixture of non-impacted materials and impacted materials, we expect that using the laboratory results for chlorinated solvents found in discrete zones within the borings (Tables 2 and 3) likely overestimates the actual concentrations of chlorinated solvents in the subject IDW drums.

- We also request that a "Contained-In" determination be extended to in-place soils and groundwater to be excavated or generated during future site redevelopment.

Since the source of the PCE, TCE and DCE may be from a historical dry cleaning operation on the Subject Property, both the current IDW drums and future waste materials generated from these soils and groundwater could be classified as a RCRA – F002 listed waste.

We believe that a "Contained In" determination as a Non-Hazardous Waste is appropriate for the subject IDW drums and future wastes generated from this site based on the relatively low concentrations of PCE, TCE and DCE detected during our investigation. As demonstrated in Tables 2 and 3, concentrations of these chlorinated solvents found at the Subject Property are all at levels less than what would be considered a Dangerous Waste according to WAC 173-303-090 through 173-303-100. Golder understands that EPA's RCRA "Contained In" policy allows for the subject waste

materials to be determined to no longer contain hazardous waste if the hazardous constituents in the media fall below site specific, risk based levels set by Ecology.

Based upon our interpretation of the "Contained In" policy, we request that Ecology approve the disposal of the subject IDW drums from the Subject Property as a RCRA Non-Hazardous waste. We also request that Ecology allow soil and groundwater containing similar concentrations of PCE and it's degradation products that will be excavated and collected during future redevelopment at the Subject Property be considered a RCRA Non-Hazardous waste.

If granted this determination, Ecology's determination would be submitted to the Waste Management Company for approval of shipment and disposal of the subject IDW (soil) at their RCRA Subtitle D landfill. The IDW (water) would be disposed of by a licensed contractor, such as Emerald Services. The actual licensed disposal contractors used will be finalized prior to disposal. Waste soil and groundwater generated during future site redevelopment would be managed in a similar manner with licensed contractors and facilities.

Please consider this request at your earliest convenience. We look forward to working with you on this project. If you have any questions, or require any other information, please contact the undersigned at (425) 883-0777.

Sincerely,

GOLDER ASSOCIATES INC.

Christopher S. King
Project Engineer

William J. Beck
Senior Environmental Scientist
Associate

Douglas Dunster
Principal

Attachments:
Table 1 – Summary of Soil Gas Sample Results
Table 2 – Summary of Soil Sample Results
Table 3 – Summary of Groundwater Sample Results
Figure 1 – Vicinity Map
Figure 2 – ESA II Sampling Map
Analytical Laboratory Data Reports

ATTACHMENTS

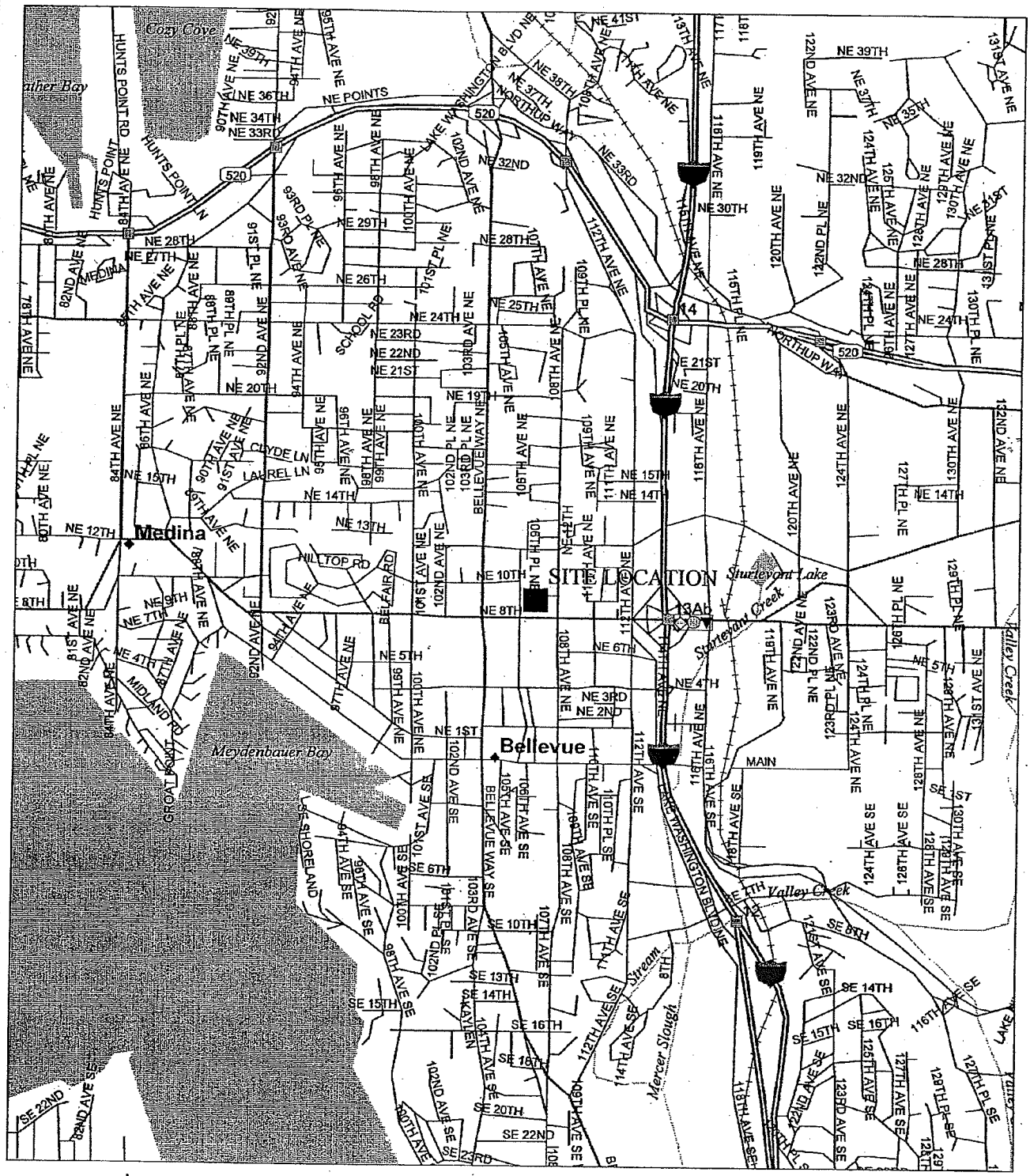


FIGURE 1

10610 NE 8TH STREET SITE LOCATION MAP

G2/SUPERBLOCK/WA

DRAWING NO. 03313341000fg01.fh11 DATE 10/01/04 DRAWN BY EFS

Golder Associates

SRO_02357

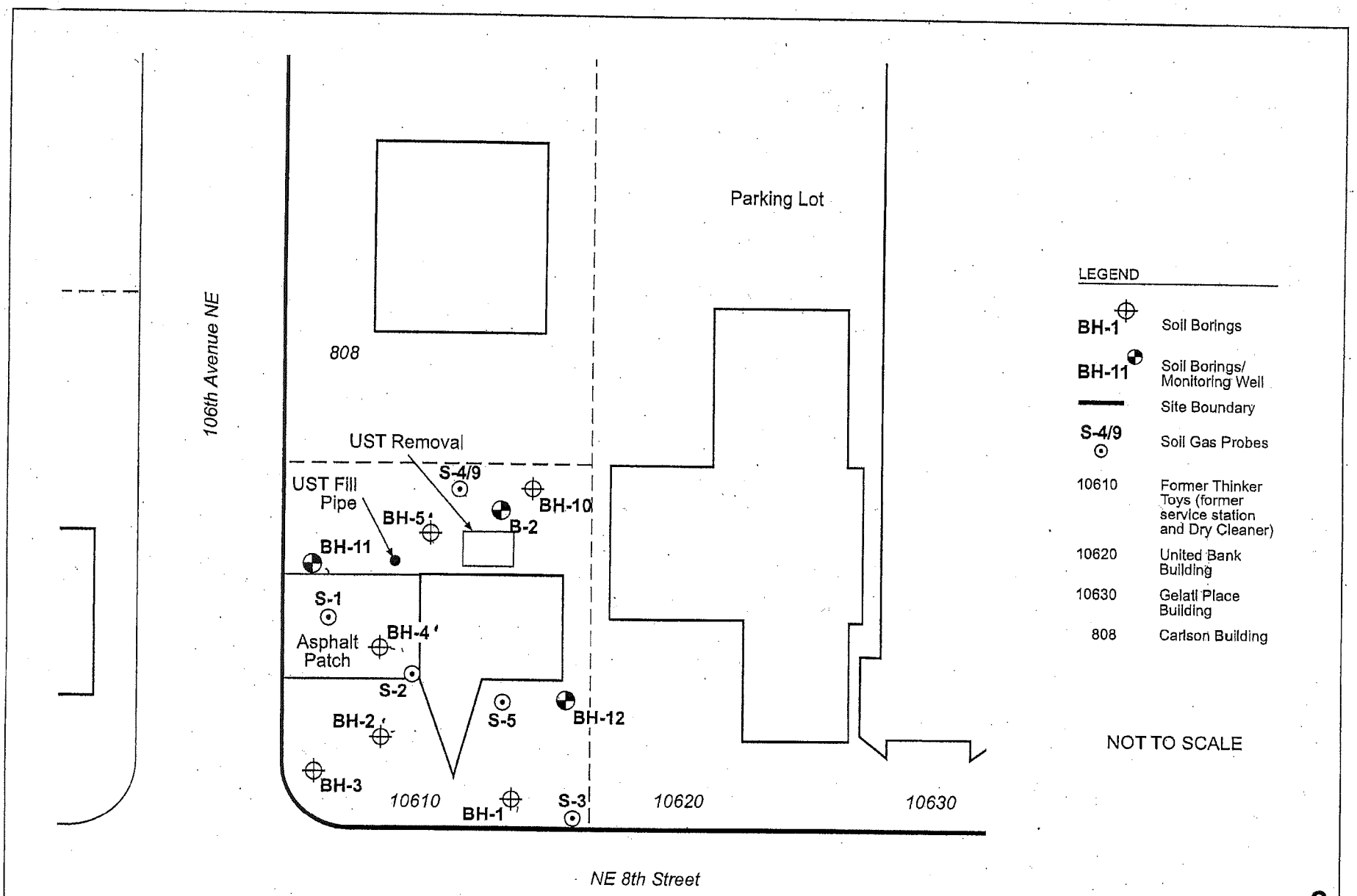


FIGURE **2**

10610 NE 8TH STREET
ESA II SAMPLING MAP
WASATCH/BELLEVUE SUPERBLOCK/WA

DRAWING NO. 03313341000fg02.fh11 DATE 11/01/04 DRAWN BY EFS

Golder Associates

SRO_02358

TABLE 2

Summary of Soil Sample Results

			MTCA Method A or B Cleanup Criteria	BH-1	BH-1	BH-2	BH-2	BH-3	BH-3	BH-4
				S-2	S-3	S-2	S-5	S-2	S-4	S-2
			Depth (ft bgs)	7.5	12.5	7.5	22.5	7.5	17.5	7.5
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Petroleum	TPH-HCID									
		Gasoline	100	ND	ND	ND	ND	ND	ND	
		Diesel	2000	ND	ND	ND	ND	ND	ND	
		Oil	2000	ND	ND	ND	ND	ND	ND	
	NWTPH-DX									
		Diesel	2000							
		Oil	2000							
Volatile Organics (8260B Full List)								ND		
	Following are only those that were Detected in Any Sample									
	Tetrachloroethene (PCE)		0.05				0.0056		0.0013	0.061
	Trichloroethene (TCE)		0.03							
	(cis) 1,2-Dichloroethene (DCE)		800							
	2-Butanone (aka MEK)		48000	0.0057						
	Acetone		800			0.07				

Notes:

RCRA Metals analysis were performed on samples from Borings B-1 - B-5.

Metals results were either ND, or below MTCA.

Shaded Cell indicated exceedance on WA State Cleanup Standard (MTCA).

ND - Not detected above the instrument detection limit.

TABLE 2

Summary of Soil Sample Results

			MTCA Method A or B Cleanup Criteria	BH-4	BH-4	BH-4	BH-5	BH-5	BH-5	BH-5
				S-3	S-4	S-5	S-2	S-3	S-4	S-5
			Depth (ft bgs)	12.5	17.5	22.5	7.5	12.5	17.5	22.5
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Petroleum	TPH-HCID									
		Gasoline	100		ND		ND		ND	
		Diesel	2000		ND		ND		ND	
		Oil	2000		ND		ND		ND	
	NWTPH-DX									
		Diesel	2000							
		Oil	2000							
Volatile Organics (8260B Full List)				ND						
	Following are only those that were Detected in Any Sample									
	Tetrachloroethene (PCE)		0.05			0.0046	2.1	0.017	0.023	0.0016
	Trichloroethene (TCE)		0.03				0.028			
	(cis) 1,2-Dichloroethene (DCE)		800				0.0079			
	2-Butanone (aka MEK)		48000							
	Acetone		800				0.0057			

Notes:
RCRA Metals analysis were performed on samples from Borings B-1 - B-5.
Metals results were either ND, or below MTCA.
Shaded Cell indicated exceedance on WA State Cleanup Standard (MTCA).
ND - Not detected above the instrument detection limit.

TABLE 2

Summary of Soil Sample Results

			MTCA Method A or B Cleanup Criteria	BH-10	BH-10	BH-10	BH-11	BH-11	BH-11	BH-12
				S-5	S-10	S-12	S-5	S-11	S-14	S-6
			Depth (ft bgs)	7.5	14	25	7	18	25	8
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Petroleum	TPH-HCID									
		Gasoline	100							
		Diesel	2000							
		Oil	2000							
	NWTPH-DX									
		Diesel	2000							
		Oil	2000							
Volatile Organics (8260B Full List)						ND				
	Following are only those that were Detected in Any Sample									
	Tetrachloroethene (PCE)		0.05	0.0063	0.016		0.016	0.093	0.018	0.0073
	Trichloroethene (TCE)		0.03				0.0012	0.0014		
	(cis) 1,2-Dichloroethene (DCE)		800					0.0019		
	2-Butanone (aka MEK)		48000							
	Acetone		800							

Notes:
RCRA Metals analysis were performed on samples from Borings B-1 - B-5.
Metals results were either ND, or below MTCA.
Shaded Cell indicated exceedance on WA State Cleanup Standard (MTCA).
ND - Not detected above the instrument detection limit.

TABLE 2

Summary of Soil Sample Results

			MTCA Method A or B Cleanup Criteria	BH-12	BH-12
				S-14	S-15
			Depth (ft bgs)	25	27
			(mg/kg)	(mg/kg)	(mg/kg)
Petroleum	TPH-HCID				
		Gasoline	100		
		Diesel	2000		
		Oil	2000		
	NWTPH-DX				
		Diesel	2000		
		Oil	2000		
Volatile Organics (8260B Full List)					
	Following are only those that were Detected in Any Sample				
	Tetrachloroethene (PCE)		0.05	0.01	0.0015
	Trichloroethene (TCE)		0.03		
	(cis) 1,2-Dichloroethene (DCE)		800		
	2-Butanone (aka MEK)		48000		
	Acetone		800		

Notes:
RCRA Metals analysis were performed on samples from Borings B-1 - B-5.
Metals results were either ND, or below MTCA.
Shaded Cell indicated exceedance on WA State Cleanup Standard (MTCA).
ND - Not detected above the instrument detection limit.

TABLE 3

Summary of Groundwater Sample Results

				GROUNDWATER SAMPLE NUMBER		
			MTCA Method A or B Cleanup Criteria	B2-GW1	BH11-GW1	BH12-GW1
Petroleum			(mg/L)	(mg/L)	(mg/L)	(mg/L)
	TPH-HCID					
		Gasoline	1	ND		
		Diesel	0.5	ND		
		Oil	0.5	ND		
	NWTPH-DX					
		Diesel	0.5			
		Oil	0.5			
Volatile Organics (Full List)						
	Following are only those that were Detected					
	Tetrachloroethene (PCE)		0.005	0.33	0.64	0.021
	Trichloroethene (TCE)		0.005	0.0014		0.001
	(cis) 1,2-Dichloroethene (DCE)		0.08	0.0002		0.0034

Shaded Value indicates exceedance of WA State Cleanup Standard (MTCA)

Methylene chloride was found in sample BH12-GW1 at 0.0017 mg/L (< than MTCA Method A); possibly a lab contaminant.

NA - Not Analyzed

Summary of Soil Gas Sample Results.

SOIL GAS #:	SG-3	SG-5	SG-2	SG-1	SG-4	SG-9
Soil gas located near Borehole indicated	BH-1	BH-1	BH-2 and BH-3	BH-4	BH-5	BH-5
FIELD DESIGNATION:	Soil Gas Sample	Soil Gas Sample	Soil Gas Sample	Soil Gas Sample	Soil Gas Sample	SG-4 Soil Gas Field Duplicate
UNITS:	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Tetrachloroethene (PCE)	ND	8.9	1700	640	40000	42000
Trichloroethene (TCE)	ND	ND	ND	ND	320	340
Benzene	ND	ND	ND	ND	ND	ND
Toluene	11	9.5	ND	ND	ND	ND
m,p-Xylene	ND	13	ND	ND	ND	ND
Acetone	NT	NT	NT	NT	ND	NT
2-Propanol	NT	NT	NT	NT	ND	NT
Ethanol	NT	NT	NT	NT	ND	NT

Notes:
ND - Not Detected at practical quantitation limit established by laboratory.
NT - Not tested; Analyte was not tested for this sample.
ppbv - Part per billion by volume measurement.

ATTORNEY WORK PRODUCT

Table 1

SOIL ANALYTICAL RESULTS
BTEX, GASOLINE, DIESEL, AND OIL
(mg/kg)

BORING ID	SOIL SAMPLE DEPTH bgs	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene	TPH-Gas	TPH-Diesel	Heavy Oil
URSSB-OP1	6	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<5.6)	ND (<28)	ND (<56)
	18	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<5.6)	ND (<28)	ND (<56)
URSSB-OP2	6	NA	NA	NA	NA	NA	NA	NA	NA
	12	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<5.4)	ND (<27)	ND (<56)
URSSB-OP3	6	ND (<0.059)	ND (<0.059)	ND (<0.059)	ND (<0.059)	ND (<0.059)	ND (<5.9)	ND (<29)	ND (<59)
	18	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<5.6)	ND (<28)	ND (<56)
URSSB-OP4	8	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<5.4)	ND (<27)	ND (<54)
URSSB-OP5	12	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<5.4)	ND (<27)	ND (<54)
URSSB-OP6	8	NA	NA	NA	NA	NA	NA	NA	NA
	20	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<5.4)	ND (<27)	ND (<54)
URSSB-OP7	8	NA	NA	NA	NA	NA	NA	NA	NA
	16	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<0.054)	ND (<5.4)	ND (<28)	88
URSSB-OP8	8	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<0.056)	ND (<5.6)	ND (<28)	ND (<56)
	18	ND (<0.055)	ND (<0.055)	ND (<0.055)	ND (<0.055)	ND (<0.055)	ND (<5.5)	ND (<28)	ND (<55)

ND: not detected above laboratory quantitation limit
NA - Sample not analyzed
bgs - Below Ground Surface
Gasoline and BTEX analyzed by method NWTPH-Gx/BTEX.
Diesel and Oil analyzed by method NWTPH-Dx.

I:\projects\wcia\99\9900024\Work Order Scopes\WO12\optimeranalys.xls\Table 1

SRO_02365

Table 2
SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
(mg/kg)

	Sample ID			
Compound	**URSSB-OP1-18**	**URSSB-OP2-12**	**URSSB-OP5-12**	**URSSB-OP6-20**
Dichlorodifluoromethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Chloromethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Vinyl Chloride	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Bromomethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Chloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Trichlorofluoromethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1-Dichloroethene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Acetone	ND (<0.28)	ND (<0.27)	ND (<0.27)	ND (<0.27)
Carbon Disulfide	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Methylene Chloride	ND (<0.28)	ND (<0.27)	ND (<0.27)	ND (<0.27)
(trans) 1,2-Dichloroethene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1-Dichloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Vinyl Acetate	ND (<0.056)	ND (<0.27)	ND (<0.27)	ND (<0.27)
2,2-Dichloropropane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
(cis) 1,2-Dichloroethene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
2-Butanone	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<1.1)
Chloroform	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1,1-Trichloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Carbon Tetrachloride	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1-Dichloropropene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Benzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2-Dichloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Trichloroethene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2-Dichloropropane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Dibromomethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Bromodichloromethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
2-Chloroethyl Vinyl Ether	ND (<0.28)	ND (<0.27)	ND (<0.27)	ND (<0.27)
(cis) 1,3-Dichloropropene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Toluene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
(trans) 1,3-Dichloropropene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1,2-Trichloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Tetrachloroethene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,3-Dichloropropane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Methyl Isobutyl Ketone	ND (<0.28)	ND (<0.27)	ND (<0.27)	ND (<0.27)
Dibromochloromethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2-Dibromoethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Chlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1,1,2-Tetrachloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Ethylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
m,p-Xylene	ND (<.11)	ND (<0.11)	ND (<0.11)	ND (<0.11)
o-Xylene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Styrene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Bromoform	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Isopropylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Bromobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,1,2,2-Tetrachloroethane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2,3-Trichloropropane	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
n-Propylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
2-Chlorotoluene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
4-Chlorotoluene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,3,5-Trimethylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
tert-Butylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2,4-Trimethylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
sec-Butylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,3-Dichlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
p-Isopropyltoluene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,4-Dichlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2-Dichlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
n-Butylbenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2-Dibromo-3-chloropropane	ND (<0.28)	ND (<0.27)	ND (<0.27)	ND (<0.27)
1,2,4-Trichlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Hexachlorobutadiene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
Naphthalene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)
1,2,3-Trichlorobenzene	ND (<0.056)	ND (<0.054)	ND (<0.054)	ND (<0.054)

Notes:
mg/kg - milligrams per kilogram
ND (<#) - Compound was not quantifiable below the stated concentration

Table 3

SOIL ANALYTICAL RESULTS
TOTAL METALS (mg/kg)

Boring Number	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
URSSB-OP6-20	25	ND (<0.54)	10	ND (<5.4)	ND (<0.27)	ND (<11)	ND (<0.54)
URSSB-OP8-18	44	ND (<0.55)	18	ND (<5.5)	ND (<0.27)	ND (<11)	ND (<0.55)

ND: Compound not detected above laboratory quantitation limit.
Total Metals analyzed by EPA Method 6010B/7000A Series

Table 4

GROUNDWATER ANALYTICAL RESULTS
MTBE, BTEX, GASOLINE, DIESEL, AND HEAVY OIL (ug/L)

BORING Number	Benzene	Toluene	Ethyl Benzene	Total Xylene	Gasoline	Diesel	Heavy Oil
URSSB-OP1-W	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<100)	ND (<0.25)	ND (<0.50)
URSSB-OP3-W	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<100)	ND (<0.25)	ND (<0.50)
URSSB-OP10-W[1]	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<100)	ND (<0.25)	ND (<0.50)

1 - duplicate sample of URSSB-OP3-W.
ND: Compound not detected above laboratory quantitation limit.
Gasoline and BTEX analyzed by method NWTPH-G/BTEX.
MTBE analyzed by EPA Method 8021B.
Diesel and heavy oil analyzed by method NWTPH-Dx.

Table 5
GROUNDWATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
(ug/L)

	Sample ID		
Compound	URSSB-OP1-W	URSSB-OP3-W	URSSB-OP10-W[1]
Dichlorodifluoromethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Chloromethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Vinyl Chloride	ND (<1.0)	ND (<1.0)	ND (<1.0)
Bromomethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Chloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Trichlorofluoromethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1-Dichloroethene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Acetone	ND (<5.0)	ND (<5.0)	ND (<5.0)
Carbon Disulfide	ND (<1.0)	ND (<1.0)	ND (<1.0)
Methylene Chloride	ND (<5.0)	ND (<5.0)	ND (<5.0)
(trans) 1,2-Dichloroethene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1-Dichloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Vinyl Acetate	ND (<5.0)	ND (<5.0)	ND (<5.0)
2,2-Dichloropropane	ND (<1.0)	ND (<1.0)	ND (<1.0)
(cis) 1,2-Dichloroethene	ND (<1.0)	ND (<1.0)	ND (<1.0)
2-Butanone	ND (<20)	ND (<20)	ND (<20)
Chloroform	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1,1-Trichloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Carbon Tetrachloride	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1-Dichloropropene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Benzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2-Dichloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Trichloroethene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2-Dichloropropane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Dibromomethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Bromodichloromethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
2-Chloroethyl Vinyl Ether	ND (<5.0)	ND (<5.0)	ND (<5.0)
(cis) 1,3-Dichloropropene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Toluene	ND (<2.0)	ND (<2.0)	ND (<2.0)
(trans) 1,3-Dichloropropene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1,2-Trichloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Tetrachloroethene	2.1	1.7	1.5
1,3-Dichloropropane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Methyl Isobutyl Ketone	ND (<5.0)	ND (<5.0)	ND (<5.0)
Dibromochloromethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2-Dibromoethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Chlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1,1,2-Tetrachloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
Ethylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
m,p-Xylene	ND (<2.0)	ND (<2.0)	ND (<2.0)
o-Xylene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Styrene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Bromoform	ND (<1.0)	ND (<1.0)	ND (<1.0)
Isopropylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Bromobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1,2,2-Tetrachloroethane	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2,3-Trichloropropane	ND (<1.0)	ND (<1.0)	ND (<1.0)
n-Propylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
2-Chlorotoluene	ND (<1.0)	ND (<1.0)	ND (<1.0)
4-Chlorotoluene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,3,5-Trimethylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
tert-Butylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2,4-Trimethylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
sec-Butylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,3-Dichlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
p-Isopropyltoluene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,4-Dichlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2-Dichlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
n-Butylbenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2-Dibromo-3-chloropropane	ND (<5.0)	ND (<5.0)	ND (<5.0)
1,2,4-Trichlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Hexachlorobutadiene	ND (<1.0)	ND (<1.0)	ND (<1.0)
Naphthalene	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,2,3-Trichlorobenzene	ND (<1.0)	ND (<1.0)	ND (<1.0)

Notes:
1 - Duplicate sample of URSSB-OP3-W
mg/kg - milligrams per kilogram
BGS - Below Ground Surface
ND (<#) - Compound was not quantifiable below the stated concentration
Volatiles analyzed by EPA Method 8260B

Table 6

ATTORNEY WORK PRODUCT

GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

(ug/L)

BORING ID	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
URSSB-OP1-W	19	ND (<10)	ND (<4.0)	ND (<10)	ND <(1.0)	ND (<0.50)	ND (<5.0)	ND (<10)
URSSB-OP3-W	ND (<3.0)	ND (<10)	ND (<4.0)	ND (<10)	ND (<1.0)	ND (<0.50)	ND (<5.0)	ND (<10)
URSSB-OP10-W[1]	ND (<3.0)	ND (<10)	ND (<4.0)	ND (<10)	ND (<1.0)	ND (<0.50)	ND (<5.0)	ND (<10)

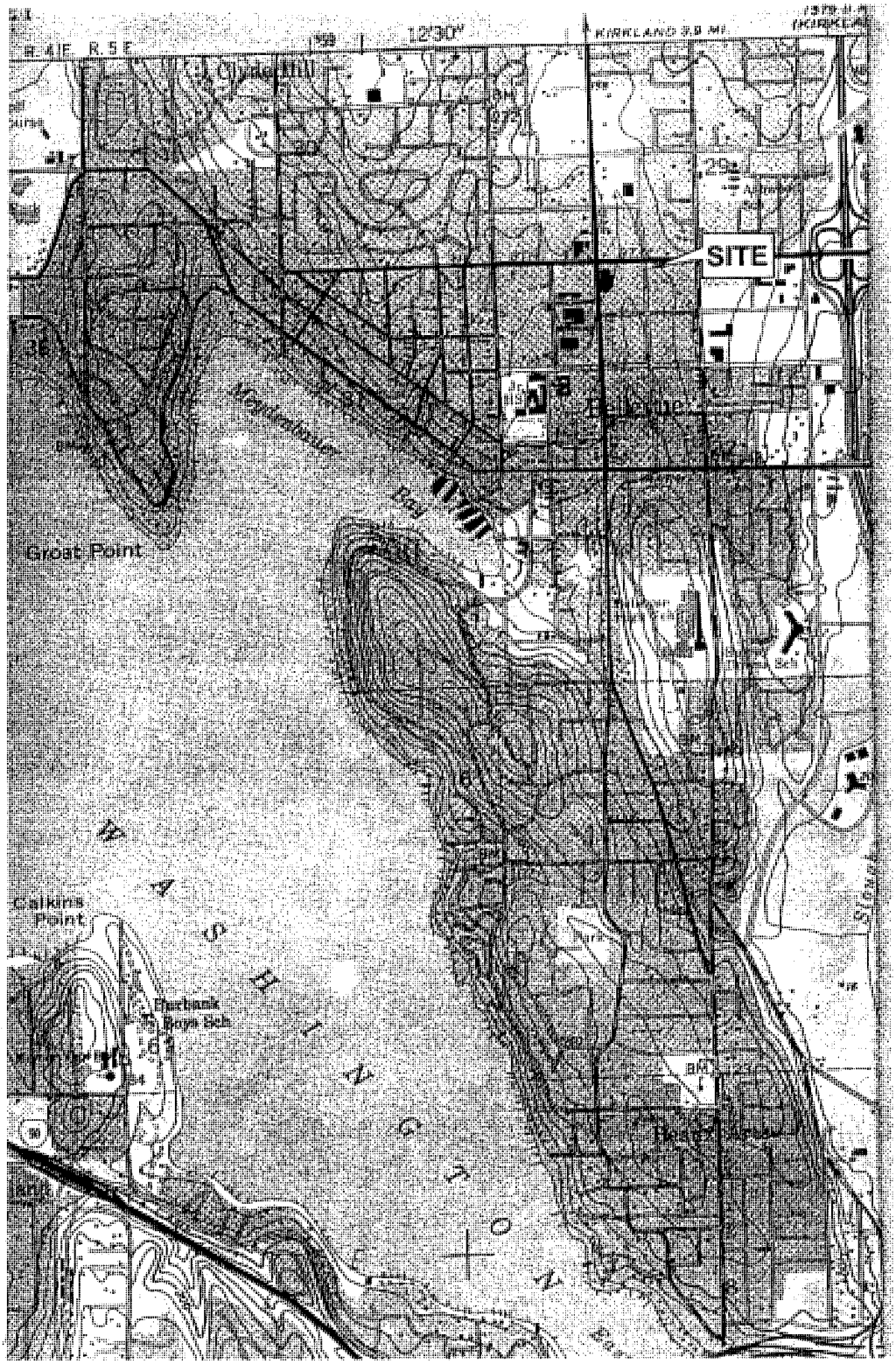
Notes:

ND (<#): compound not detected below the stated concentration

1: duplicate sample of URSSB-OP3-W

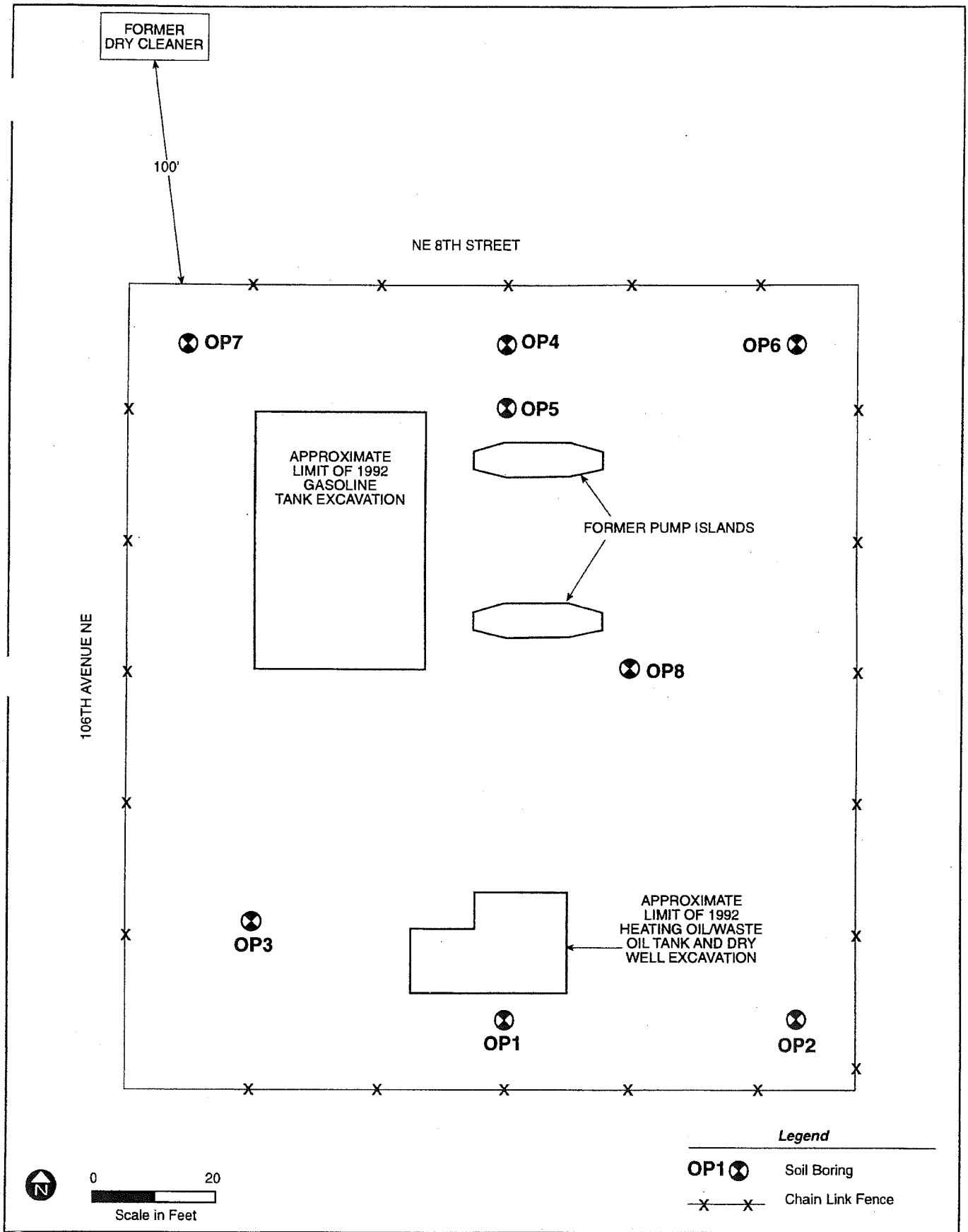
ug/L: micrograms per liter

Dissolved Metals analyzed by EPA Method 6010B/7000A Series



Sound Transit W.O. 12	Project No. 5409900024.12	Project Site Location	Figure 1
URS Greiner Woodward Clyde			

99/Sound Transit 12 3/00



nd Transit .O. 12 / Project No. 5409900024.12	Soil Boring Locations	Figure 2
URS Greiner Woodward Clyde		

99/Sound Transit 12 3/00

SRO_02371

Appendix A
Boring Logs

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP1

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	23.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	20	Hammer Weight and Drop	NA	Top of PVC Elevation	NA
Diameter of Hole (inches)	2"	Diameter of Well (inches)	NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					asphalt surface					
					Gravelly Silty SAND (SP-SM) - moist, brown, no odor, no sheen					
			100%				0		0820	
5					Gravelly SAND (SP) - moist, medium dense, brown/tan, mottled, sub-rounded to sub-angular gravel, no odor, no sheen					
10					same as above - gray, dense					
15			100%				0		0900	
						▽				water encountered at approximately 19' bgs
20			NA				0		0920	screen set at 20' - 23' bgs
25										

URS Greiner Woodward Clyde

Report: ; Project File: C:\PROGRA~1\GINTW\PROJECTS\OPTIMER.GPJ; Data Template:WC_CORP1.GDT Printed

SRO_02373

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP2

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	13.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	13	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2" / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					Silty Sandy GRAVEL (GP) - dry, reddish-brown, no odor, no sheen					
			100%				0		0950	
5					Gravelly SAND (SP) - moist, medium dense, brown, large angular gravel, no odor, no sheen					
			100%				0		1010	
10					▽					
										water encountered @ aproximately 13' bgs
15										
20										

URS Greiner Woodward Clyde

Report: ENV_23A; Project File: C:\PROGRA~1\GINT\PROJECTS\OPTIMER.GPJ; Data Template:WC_CORP1.GDT Printed: 4/12/00

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP3

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	23.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	20	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2" / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					asphalt surface Silty Sandy GRAVEL (GP) - moist, red, mottled, no odor, no sheen					
5			100%				0		1030	
10					Gravelly SAND (SP) - moist, brown/gray, sub-rounded to sub-angular gravel, no odor, no sheen same as above - no odor, no sheen					
15			100%		same as above - no odor, no sheen same as above - no odor, no sheen		0		1100	
20			NA		▽		0		1110	water encountered @ approximately 19' bgs
25										duplicate water sample collected (OP10-W) @ 1700

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP4

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	12.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	not encountered	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2"	Diameter of Well (inches)	NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
	0						Sandy GRAVEL (GP) - moist, brown-gray, no odor, no sheen					
	5				100%				0		1130	
	10						same as above - no odor, no sheen					refusal @ 12' bgs, no water encountered
	15											
	20											

URS Greiner Woodward Clyde

Report: ENV_23A; Project File: C:\PROGRA~1\GINTW\PROJECTS\OPTIMER.GPJ; Data Template:WC_CORP1.GDT Printed: 4/12/00

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP5

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	15.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	not encountered	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2"	Diameter of Well (inches)	NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					Sandy GRAVEL (GP) - moist, brown, mottled, no odor, no sheen					
5										
10			100%		SAND (SP) - moist, trace gravel, brown, no odor, no sheen		0		1230	
15										refusal @ 15' bgs, no water encountered
20										

URS Greiner Woodward Clyde

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP6

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	25.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	not encountered	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2"	Diameter of Well (inches) NA		Type of Well Casing NA	Screen Perforation NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					asphalt surface					
					Silty Sandy GRAVEL (GP-GM) - dry, mottled, no odor, no sheen					
			100%				0		1320	
5					Gravelly SAND (SP) - moist, brown, mottled, some gravel, no odor, no sheen					
10					same as above - dense, no odor, no sheen					
15					same as above - no odor, no sheen					
			100%				0		1400	
20					same as above - very dense, no odor, no sheen					screen placed @ 21' - 25'; insufficient water to sample; unable to advance probe further
25										
30										

URS Greiner Woodward Clyde

Report: ENV_23A; Project File: C:\PROGRA~1\GINTW\PROJECTS\OPTIMER.GPJ; Data Template:WC_CORP1.GDT Printed: 4/12/00

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP7

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	16.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	not encountered	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2"	Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet / Depth, feet	SAMPLES: Type / Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
0					asphalt surface					
					Silty Sandy GRAVEL (GP) - red/brown, dry, no odor, no sheen					
			100%				0		1440	
5										
					Gravelly SAND (SP) - moist, brown, dense, trace gravel, sub-rounded to sub-angular gravel, no odor, no sheen					
10										
			100%				0		1505	
15					same as above - very dense, no odor, no sheen					
										refusal @ 16' bgs; no water encountered
20										

Project: Cental Puget Sound Regional Transit Authority
Project Location: 10605 NE 8th Street, Bellevue, WA
Project Number: 54-09900024.12

Log of Boring URSSB-OP8

Sheet 1 of 1

Date(s) Drilled	3/11/00	Logged By	J. Rapp	Checked By	G. Davis
Drilling Method	Geoprobe	Drilling Contractor	TEG	Total Depth Drilled (feet)	20.0
Drill Rig Type	truck mounted	Sampler Type	Split Spoon	Surface Elevation	145 feet (MSL)
Groundwater Level	no encountered	Hammer Weight and Drop	NA	Top of PVC Elevation	
Diameter of Hole (inches)	2" / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	boring backfilled with bentonite chips				

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID scan (ppmv)		Drilling Rate (Time, 24-hour clock)	REMARKS
	0						Sandy GRAVEL (GP) - dry, reddish-brown, no odor, no sheen					
	5				100%		Gravelly SAND (SP) - moist, gray, mottled, no odor, no sheen		0		1530	
	10						same as above - dense, no odor, no sheen					
	15				100%		same as above - no odor, no sheen		0		1550	
	20						same as above - very dense, no odor, no sheen					refusal @ 20' bgs, no water encountered
	25											

URS Greiner Woodward Clyde

Report: ENV_23A; Project File: C:\PROGRA~1\GINTW\PROJECTS\OPTIMER.GPJ; Data Template:WC_CORP1.GDT Printed: 4/12/00

TERRA ASSOCIATES, Inc.

Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

July 17, 2008
Project No. T-6227-1

Mr. Dave Startzel
Trammell Crow Company
701 Pike Street, Suite 2100
Seattle, Washington 98101

DRAFT

Subject: Limited Phase II Environmental Site Assessment
SRO Site
SEC NE 8th Street and 106th Avenue NE
Bellevue, Washington

Dear Mr. Startzel:

In accordance with your request, Terra Associates, Inc. has completed a Limited Phase II Environmental Assessment of the subject site.

We have completed a Draft Phase I ESA of the site. One on-site historic recognized environmental condition (HREC) was identified. This HREC is the former presence of a retail gasoline station on-site. The former operator of the gasoline station has performed a site cleanup and has received concurrence from Ecology that the cleanup was adequate. Subsequent to the cleanup, cleanup levels for gasoline have been lowered for some gasoline constituents such as benzene. It is possible that local pockets of soils above the current cleanup level exist on-site.

The off-site REC consists of a documented release of perchloroethylene (PCE) on the site immediately north of the site across NE 8th Street. The actual extent of the PCE impacts to the groundwater in the area has not been documented by the owners of the adjacent parcel north of the site.

12525 Willows Road, Suite 101, Kirkland, Washington 98034
Phone (425) 821-7777 • Fax (425) 821-4334

The purpose of our work was to screen the site for impacts from the former operation of a gasoline station on-site and to evaluate the groundwater for the possible presence of tetrachloroethylene (perc, PCE) released from the former dry cleaner north of the site.

The results of the analytical testing indicate that there are impacts to the shallow perched groundwater on-site with dry cleaning fluid (tetrachloroethylene, PCE). Additional site sampling is needed to verify the distribution and concentration of the PCE in the site groundwater. There may also be low levels of PCE contamination in some site soils that will need to be addressed during site excavation.

SCOPE OF WORK

Our scope of work for the current work consisted of:

- Field screening and sampling of soils for the boring on the location of the former Unocal Site.
- Sampling each of the monitoring wells to obtain samples for analysis for volatile organic compounds and petroleum hydrocarbons.
- Prepare a written report summarizing the results of our site observations, results of analytical testing, and our analysis of the data.

SITE CONDITIONS

Surface

The site consists of 3 tax parcels totaling 1.6 acres located at the southeast quadrant of the intersection of NE 8th Street and 106th Avenue NE in Bellevue, Washington. The location of the site is shown on the Vicinity Map, Figure 1. Figure 2 is a site plan that shows the site layout and boring locations.

The site consists of three individual tax parcels that in total cover approximately 1.4 acres in Bellevue, Washington. There are commercial buildings on the two eastern parcels. The site use is primarily retail, service, and restaurants. The western parcel, at the corner of NE 8th Street and 106th Avenue NE is a vacant lot. This vacant lot was formerly occupied by a gasoline station.

The 3 parcels slope down towards the west with overall relief of approximately 15 feet.

Subsurface Soils

For our concurrent Geotechnical Study, 3 borings were advanced on the site to depths of about 100 feet below existing grades. We observed that the site is immediately underlain by fill or disturbed site soils. Beneath the disturbed soils, all of our borings encountered very dense glacially consolidated soils. The thickness of the upper fill layer ranged from three feet in Boring B-1 to six feet in Boring B-2. The fill consists of silty sand with gravel. Beneath the fill, we observed dense to very dense silty sand with gravel (till). The till extended to depths of approximately 35 to 38 feet below existing surface grades.

Below the till, we observed gravel with silt and sand to clean gravel and sand (Advance outwash) extending to depths of 76 to 90 feet below existing grades. Below the Advance outwash, the borings encountered and were terminated within very dense silty sand to hard silts. These lower soils may represent the transitional beds.

Groundwater

Each boring was provided with a 2-inch diameter monitoring well. Groundwater was found in each of the monitoring wells built on-site. The depths to the static water levels are shown below in Table 1. The groundwater in Borings B-1, B-2, and B-4 is a regional water table aquifer that is found in the advance sands. The groundwater that is present in the monitoring well built in B-3 is a local perched groundwater table. The perched groundwater is discontinuous.

Table 1
Groundwater Summary

Boring/Well Number	Total Drilled Depth/Total Casing Depth Below Existing Grade (feet)	Screen Interval (feet below existing grade)	Static Water Depth below top of PVC	
			6/26/08	7/7/08
B-1	101.5/101.5	70 to 90	97.05	88.87
B-2	101.5/101	70 to 90	74.30	74.62
B-3	30/30	20 to 30	23.89	23.93
B-4	101.5/90	70 to 90	74.75	74.77

FIELD SAMPLING

Soils

Our soil sampling was done in Boring B-2 drilled on the parcel that was formerly occupied by a Unocal gasoline station. The purpose of the soil sampling was to expand site characterization performed by two previous property owners.

Representative samples were placed into laboratory provided glassware. Field sampling for volatile organics was performed in accordance with EPA Method 5035A. All samples were refrigerated pending delivery to OnSite Environmental Inc. in Redmond, Washington. We followed chain of custody protocols for all samples.

A sub sample of each sample was retained for field screening using the head space and sheen techniques. The results of the field screening indicated that none of the samples had volatile organic vapors above background levels. The PID used for the headspace screening has a sensitivity that starts at approximately one part per million. No sheens were observed during the sheen screening.

Groundwater

Prior to sampling, each well was developed by surging the screen and removing at least three casing volumes using a dedicated disposable bailer. The wells were developed at least three days prior to sampling to allow the groundwater to stabilize. Sampling was done using low flow purging with a stainless steel submersible pump. At least three casing volumes were removed prior to taking the water sample.

Groundwater samples were placed into laboratory provided glassware. All samples were refrigerated pending delivery to OnSite Environmental Inc. in Redmond, Washington. We followed chain of custody protocols for all samples.

ANALYTICAL TESTING

Soils

At the laboratory, selected samples from Boring B-2 were tested for total petroleum hydrocarbons (TPH) in the gasoline, diesel, and oil range. The laboratory reports are attached to this letter. The following table summarizes the results of the analysis on soil samples. Field screening of soil samples did not encounter any elevated head space readings or sheens. Soil samples were chosen to represent both shallow soils where surface spills may have occurred as well as deeper soils where leaks from former USTs may be present. Table 2 summarizes the TPH analysis done on the selected soil samples.

Table 2
Petroleum Hydrocarbons
Soil

Exploration Number	Depth (feet)	TPH Gasoli9ne Range	TPH Diesel Range	TPH Oil Range
B-2	5	22U	56U	110U
	15	22U	55U	110U
	25	22U	54U	110U
MTCA		30	2,000	2,000

Notes: All units are parts per million (ppm).
U indicates that the analyte was not present at the stated numerical practical quantitation limit (PQL).
PQL varies with the soil moisture content.
MTCA cleanup values are based on the presence of benzene, a conservative assumption.
MTCA values shown are for residential properties.

Groundwater

Groundwater samples were taken from each of the wells built for this study. The exception to this was MW-1, which did not produce groundwater in sufficient quantities to provide representative samples. Groundwater samples were analyzed for petroleum hydrocarbons due to the former presence of a gasoline station on-site and for chlorinated solvents such as tetrachloroethylene (perc, PCE), a common dry cleaner solvent, due to the documented release of PCE north of the site. The results of the groundwater analysis are summarized in Tables 3 and 4 below.

Table 3
Petroleum Hydrocarbons
Groundwater

Boring / Well Number	Sample Date	TPH Gasoline Range	TPH Diesel Range	TPH Oil Range
MW-2	7/7/08	100U	250U	500U
MW-3	7/7/08	100U	250U	500U
MW-4	7/7/08	100U	250U	500U
MTCA		800	500	500

Notes: All units are parts per billion (ppb).
U indicates that the analyte was not present at the stated numerical practical quantitation limit (PQL).
MTCA cleanup values are based on the presence of benzene, a conservative assumption.
MTCA values shown are for residential properties.

For Table 4, only the constituents commonly associated with gasoline, common solvents, and volatile organic compounds present above their respective practical quantitation limits (PQLs) have been listed. The PQLs are protective of human health. The actual test includes a total of 68 compounds.

Table 4
Volatile Organic Compounds
Groundwater

Boring / Well Number	Sample Date	Benzene	Ethyl benzene	Toluene	M, p xylene	O xylene
MW-2	7/7/08	0.2U	0.2U	1.0U	0.4U	0.2U
MW-3	7/7/08	0.4U	0.4U	2.0U	0.8U	0.4U
MW-4	7/7/08	0.2U	0.2U	1.0U	0.4U	0.2U
MW-5	7/7/08	0.4U	0.4U	2.0U	0.8U	0.4U
MTCA		5.0	700	1,000	1,000	

Table 4
continued
Volatile Organic Componnds
Groundwater

Boring / Well Number	Sample Date	Acetone	2-Butanone (MEK)	Trichloroethylene	Tetrachloroethene	1,1,1 Trichloroethane
MW-2	7/7/08	5.0U	5.0U	0.2U	0.2U	0.2U
MW-3	7/7/08	10U	10U	0.42	80	0.4U
MW-4	7/7/08	5.0U	5.0U	0.2U	0.2U	0.2U
MW-5	7/7/08	10U	10U	0.42	79	0.4U
MTCA		800	4,800	5.0	5.0	200

Notes: All units are parts per m\billion (ppb).
U indicates that the analyte was not present at the stated numerical practical quantitation limit (PQL).
Cleanup values are Method A, cleanup values shown in italics are Method B levels.
This table is a summary of volatile compounds; please refer to the laboratory report for a full listing of volatile organic compounds.
Sample MW-5 is a field replicate of Sample MW-3.

As can be seen in the tabulated data, PCE is present well above current cleanup levels in the monitoring well built in B-3 (MW-3). No gasoline constituents, petroleum hydrocarbons, or solvents commonly associated with service stations were present in any of the groundwater samples from the site. The cleanup values used for this report are for unrestricted land use including residential land uses.

The assumed source of the PCE is the former drycleaner located immediately north, across NE 8th Street from the site.

PRELIMINARY MITIGATION DISCUSSION

Groundwater

The proposed excavation for the new building on-site will intercept the groundwater with the elevated PCE. The permeability of the near-surface soils is expected to be relatively low. If the perched groundwater with the elevated PCE is migrating through high permeability corridors such as utility trenches, it may be possible to cut off or significantly reduce the quantity of impacted groundwater that would enter the proposed excavation. Groundwater that enters the excavation and/or groundwater that is collected in permanent basement wall drains with elevated PCE will need to be treated prior to discharge. One concern that needs to be addressed is the possible routing of PCE contaminated groundwater from the upper perched groundwater into the lower apparently un-impacted aquifer within the advance sands.

There will be some logistical challenges to collecting groundwater seepage from along the top of the basement wall to reduce or minimize the potential for routing the PCE into the deeper aquifer. One approach we are considering at this time is to install a vacuum collections system along a portion of the upper 30 feet of the cut near the northwest corner of the site. The vacuum system could be installed as part of the temporary dewatering during soil nail and shotcrete placement. The vacuum system could then be left in place for long-term shallow seepage control. The collected water could then be routed through a small water sparging system for final treatment prior to discharge to surface water. This would require an NPDES permit and ongoing monitoring. The length of time the system would need to be operated may be on the order of 10 to 20 years. If construction proceeds on the site that is the presumed source of the PCE, the source will be remediated and the time that seepage would need special treatment could be shortened. The initial purchase cost of the water treatment system could be on the order of $20,000 to $35,000. The monitoring costs could be on the order of $3,000 to $5,000 per year for permit management. The cost of water disposal following treatment should be the same as if the water did not need treatment.

Additional monitoring wells will be needed to verify the extent of the groundwater impacts on-site and the length of the excavation wall that may require special dewatering considerations.

Soils

With a groundwater level of PCE at 80 parts per billion, soil that has been saturated with the groundwater will likely require special handling during excavation and disposal. We anticipate that the soils can be routed into the municipal waste stream at a bulk tipping cost of about $35 to $45 per ton; however, there will be additional on-site management and handling costs in addition to the tipping fee. These costs do not include trucking since the export of general soils from the excavation will require trucking costs in any case. The disposal site would likely be the railroad reload facility south of the sports stadiums in Seattle.

Additional borings would need to be performed to verify the presence and probable extent of the PCE on-site that may require special handling. This is in addition to soils that may have incidental odors of hydrocarbons that may require special handling due to the sensitivity of disposal sites.

Vapor Intrusion Issues

Provided the subsurface elements of the building that are proximate to the PCE impacts are all ventilated garage space, no special mitigation for vapor intrusion issues should be needed. The levels of PCE that could enter the building through basement walls could be managed with the exhaust system that manages automotive fumes and exhaust. In the event there is a slab-on-grade above soils with PCE issues that will be finished space, mitigation can be built in through the use of sub slab vapor collection systems and passive or active venting to the atmosphere.

Additional Exploration Costs

To advance three more monitoring wells and three additional shallow soil borings in the upper till soils will cost about $25,000 to $28,000. There may be a need for extra management of the exploration derived waste due to the possible presence of PCE in the soils and groundwater. The costs for disposal are incorporated into these costs.

CLOSURE

We conducted limited testing for this report to screen the site for wide spread contamination. There may be local areas of soil contamination that are above current cleanup levels. There may also be soils with hydrocarbon like odors that have hydrocarbons below current cleanup levels. The findings, conclusions, and recommendations presented in this report are based on our documented site observations, the results of field screening, and laboratory analysis of selected soil samples. Other information related to past site uses or current site conditions may exist. Additional monitoring wells will be needed to evaluate the extent of PCE in the shallow perched groundwater on-site.

If the existing site uses change, or if further information on the site becomes available, Terra Associates, Inc. should review the information, as it may affect our conclusions. Costs discussed in this letter are current costs.

We prepared our conclusions and recommendations in accordance with generally accepted professional engineering practices. We make no other warranty, either expressed, or implied. This report is the copyrighted property of Terra Associates, Inc. and is intended for specific application to the SRO Site. This report is for the exclusive use of the Trammel Crow Company and its authorized representatives.

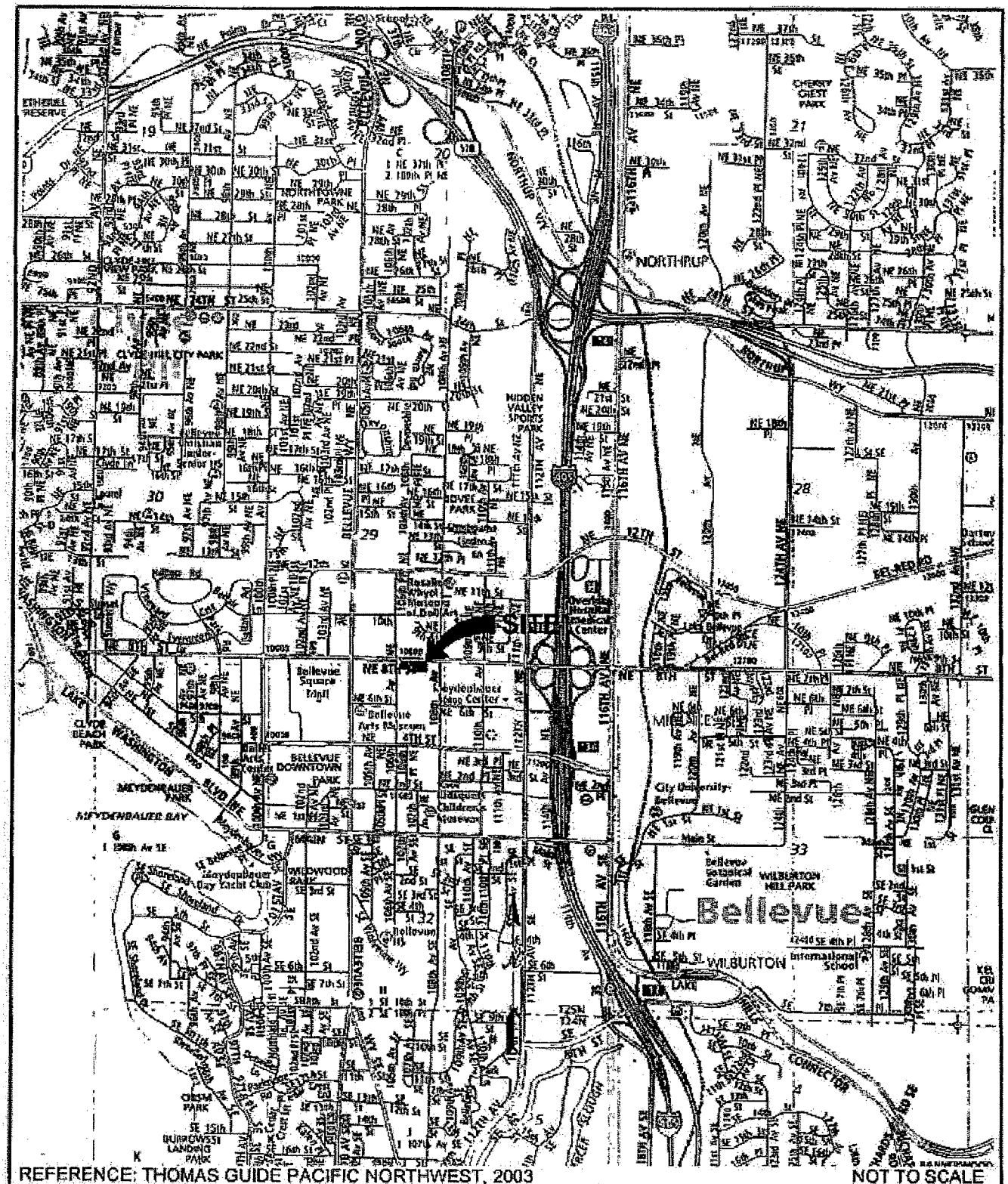
We appreciate the opportunity to work with you on this project. If you have any questions or require additional information, please call.

Sincerely yours,
TERRA ASSOCIATES, INC.

DRAFT

Charles R. Lie, L.H.G.
Project Manager

Encl: Figure 1 – Vicinity Map
Figure 2 – Exploration Location Plan
Figures 3 through 8 – Boring Logs
Laboratory Analytical Reports
Field Data Sheets

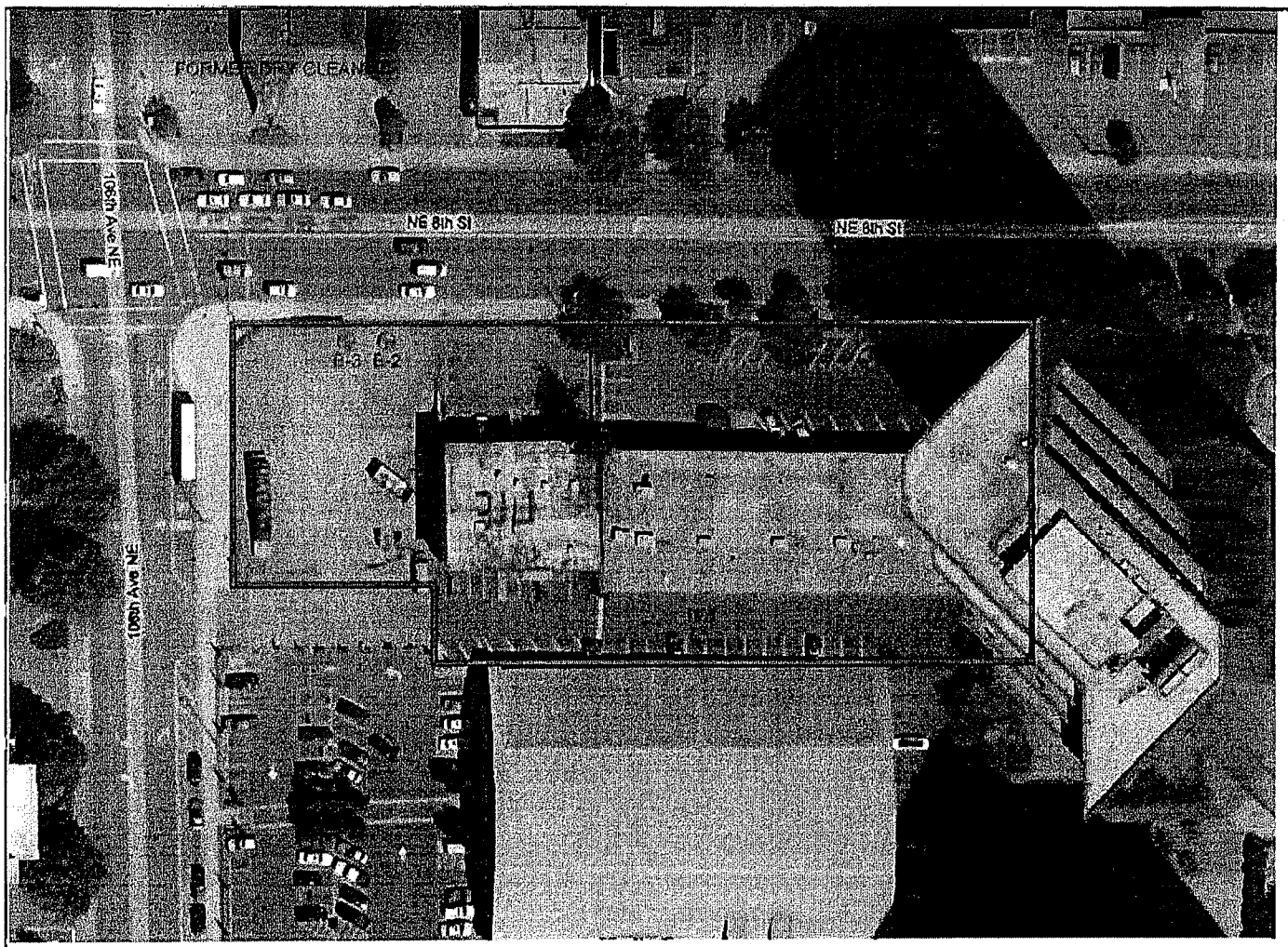


Terra Associates, Inc.
Consultants in Geotechnical Engineering
Geology and
Environmental Earth Sciences

VICINITY MAP
SRO PROPERTY
BELLEVUE, WASHINGTON

Proj. No.T-6227-1	Date JULY 2008	Figure 1

SRO_02390



NOTES:
1. THIS SITE PLAN IS SCHEMATIC. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE. IT IS INTENDED FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR DESIGN OR CONSTRUCTION PURPOSES.

REFERENCE:
SITE PLAN PROVIDED BY GOOGLE EARTH

Terra Associates, Inc.
Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

EXPLORATION LOCATION PLAN
SRO PROPERTY
BELLEVUE, WASHINGTON

Proj. No. T-6227-1	Date JULY 2008	Figure 2

SRO_02391

LOG OF BORING NO. 1

Figure No. 3

Project: SRO Property **Project No:** T-6227 **Date Drilled:** June 22, 2008

Client: Trammell Crow Company **Driller:** Gregory Drilling **Logged By:** DPL

Location: Bellevue, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |-----x-----| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 / SPT (N) ● Blows/ft ● 10 20 30 40	Observ. Well
1-3		(4 inches ASPHALT) FILL: brown silty sand, fine grained, moist.	Medium Dense			
5				8.6	69	
9				9.6	50/5"	
15				7.5	50/5"	
16-19		Grayish-brown silty SAND with gravel, fine grained, moist. (SM) (Glacial Till)	Very Dense			
19					50/5"	
20				10.2		
21-24		(Occasional silty sand to clean sand lenses)				
25				10.2	50/5"	
29					50/4"	
30				9.3		
34				9.3	50/4"	
38-40		Grayish-brown GRAVEL with silt and sand. (Advance outwash)	Very Dense		50/3"	

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF BORING NO. 1

Figure No. 3

Project: SRO Property Project No: T-6227 Date Drilled: June 22, 2008

Client: Trammell Crow Company Driller: Gregory Drilling Logged By: DPL

Location: Bellevue, Washington Approx. Elev: N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |----x----| Wl (10 30 50 70 90)	Pocket Penetrometer TSF (1 2 3 4) SPT (N) Blows/ft (10 20 30 40)	Monitor Well
41–64		Grayish-brown to gray GRAVEL with sand and silt, occasional cobbles, fine to coarse grained, moist. (GM-GP) (Less silt with depth) (Advance outwash)	Very Dense	6.6; 6.4; 5.3; 8.3; 4.3	50/4"; 50/5"; 50/4"; 50/3"; 50/4"	
64–78		Grayish-brown silty SAND to brown SAND with gravel, fine grained, dry to moist. (SM to SP) (Advance outwash)	Very Dense	5.8; 2.7; 5.6	50/2"; 50/5"	
78–80		*Continued on Next Page.				

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF BORING NO. 1

Figure No. 3

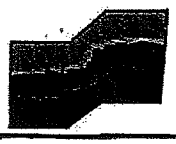
Project: SRO Property Project No: T-6227 Date Drilled: June 22, 2008

Client: Trammell Crow Company Driller: Gregory Drilling Logged By: DPL

Location: Bellevue, Washington Approx. Elev: N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |-----x-----| Wl 10 30 50 70 90	Pocket Penetrometer TSF 1 2 3 4 / SPT (N) Blows/ft 10 20 30 40	Monitor Well
81–88		Gray silty SAND, fine grained. (SM) (Trace iron stains at 85.5 feet)	Very Dense to Dense	21.8 at 81; 24.0 at 85	74/11 at 81; 43 at 85	
89–101		Blue gray sandy SILT, wet to moist. (ML)	Very Stiff to Hard	24.3 at 89; 27.6 at 95; 25.1 at 101	31 at 90; 37 at 95; 39 at 101	
102–120		Boring terminated at 101.5 feet. No groundwater seepage observed during drilling. 2-inch PVC monitoring well constructed as shown using 0.020 factory slotted screen. Groundwater measured at 97.05 feet on June 26, 2008.				

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.



Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF BORING NO. 2

Figure No. 4

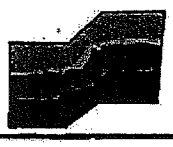
Project: SRO Property | Project No: T-6227 | Date Drilled: June 23, 2008

Client: Trammell Crow Company | Driller: Gregory Drilling | Logged By: DPL

Location: Bellevue, Washington | Approx. Elev: N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |-----x-----| Wl 10 30 50 70 90	Pocket Penetrometer TSF 1 2 3 4 / SPT (N) Blows/ft 10 20 30 40	Observ. Well
1-6		(3 inches ASPHALT) FILL: brown silty sand with gravel, fine grained, moist. (SM)	Medium Dense	11.6	22	
6-35		Grayish-brown silty SAND with gravel, fine grained, moist. (SM) (Glacial Till) (Occasional thin sand lenses)	Very Dense	8.2 10.3 6.1 8.3 9.2 9.9	80/11" 70 50/1" 50/5" 50/5" 50/5"	
35-40		Gray silty SAND with gravel to GRAVEL with sand. (SM-GP) (Advance outwash) *Continued on Next Page.	Very Dense		50/4"	

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.



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LOG OF BORING NO. 2

Figure No. 4

Project: SRO Property | Project No: T-6227 | Date Drilled: June 23, 2008

Client: Trammell Crow Company | Driller: Gregory Drilling | Logged By: DPL

Location: Bellevue, Washington | Approx. Elev: N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |-----x-----| Wl (10 30 50 70 90)	Pocket Penetrometer TSF (1 2 3 4) / SPT (N) Blows/ft (10 20 30 40)	Monitor Well
41–49		Gray silty SAND with gravel, fine grained, moist. (SM)	Very Dense	9.6; 7.8; 22.9	50/5"; 50/4"	
50–63				9.4; 9.1	50/2"; 50/5"	
64–74		Gray silty SAND, fine grained, moist to wet. (SM) (Advance outwash)	Very Dense	20.8; 24.3; 25.6	50/5"; 50/5"; 79	
75–80		*Continued on Next Page.			60	

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

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APPENDIX B

BORING LOGS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-MW-1

Sheet 1 of 1

Date(s) Drilled	**8/25/08**	Logged By	**JW**	Checked By	
Drilling Method	**HSA**	Drilling Contractor	**Cascade Drilling**	Total Depth of Borehole	**30 feet bgs**
Drill Rig Type		Drill Bit Size/Type	**8"**	Ground Surface Elevation	**158.27 feet MSL**
Groundwater Level	**21 ft bgs**	Sampling Method	**Split Spoon - D&M**	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
	0							SM	Surface: Asphalt Brown silty SAND with gravel, pea gravel, some wood debris (slightly damp) (fill)		Time: 0732
				5 7 10	94	12.1			No odor, no stain		0733
	5			9 10 10	89	4.4			Grading some gray sand		0741
150				35 50/6"	50	9.2			Grading gray with rust brown coarse SAND (dry)		0744
	10			42 50/6"	67	5.0		SP	Gray SAND, angular gravel (dry) (no odor, no stain)		0753
				41 50/6"	100	5.8			Grading coarse gravel/cobble pieces		0757
	15		MW-1-15	36 50/6"	100	6.1		SM	Light gray brown silty SAND with some gravel, mixed pea gravel (damp) (no odor, no stain) (fill)		0800
140				42 50/6"	83	3.0					0808
	20			31 42 50	83	5.4			Grading wet	21 ft ▼	0811
				43 50/6"	83	2.6			Grading silty SAND with gravel, rounded gravel/cobble to 1" diameter (dense) (wet) (no odor)		0816
	25			50/6"	100	3.2					0820
130			MW-1-27.5	50/6"	100	8.4					0822
	30								Boring was completed to 30' bgs. Groundwater was encountered at 21' bgs. Monitoring well installed on 8/25/08 as follows: Screen: 20-slot 2" Sch 40 PVC 20'-30' bgs Riser: 0'-20' bgs Sand pack: 2/12 sand 18'-30' bgs Bentonite chips: 2'-18' bgs Surface completion: 6" flush mount set in concrete		0824
	35										

ENV2 WITH WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-MW-2

Sheet 1 of 1

Date(s) Drilled	**8/27/08**	Logged By	**JW**	Checked By	
Drilling Method	**HSA**	Drilling Contractor	**Cascade Drilling**	Total Depth of Borehole	**30 feet bgs**
Drill Rig Type		Drill Bit Size/Type	**8"**	Ground Surface Elevation	**160.59 feet MSL**
Groundwater Level	**~25 ft bgs**	Sampling Method	**Split Spoon - D&M**	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
160	0							SW	Surface: Asphalt Brown gravelly SAND with pea gravel (loose) (no odor) (fill)		Time: 0737
				4 5 10	100	3.5					0741
	5			28 30 35	100	9.8			Grading some coarse gravel		0744
				27 30 30	100	4.3					0747
150	10			27 30 38	100	6.4		SP	Pale brown fine SAND with some silt (dense) (dry) (no odor)		0750
				50/6"	100	4.6		SM	Gray brown silty medium to fine SAND (dense) (dry)		0752
	15		MW-2-15	50/6"	100	5.8					0756
				50/6"	100	3.9		SP	Light gray-brown fine SAND (dense) (damp) (no odor)		0759
140	20			50/6"	100	4.3					0804
				37 50/6"	100	4.2			Grading increasing gravel		0807
	25			29 50/6"	100	5.8			Grading lenses of fine sand (wet)	25 ft ▼	0810
			MW-2-27.5	35 50/6"	75	2.3		SM	Gray-brown silty SAND (dense) (wet)		0813
130	30			50/6"	0				Boring was completed to 30' bgs. Groundwater was encountered at 25' bgs. Monitoring well installed on 8/27/08 as follows: Screen: 20-slot 2" Sch 40 PVC 20'-30' bgs Riser: 0'-20' bgs Sand pack: 2/12 sand 18'-30' bgs Bentonite chips: 2'-18' bgs Surface completion: 6" flush mount set in concrete		0817
	35										

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URS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-MW-3

Sheet 1 of 1

Date(s) Drilled	8/26/08	Logged By	JW	Checked By	
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole	30 feet bgs
Drill Rig Type		Drill Bit Size/Type	8"	Ground Surface Elevation	154.30 feet MSL
Groundwater Level	~27 ft bgs	Sampling Method	Split Spoon - D&M	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
	0							SM	Surface: Asphalt and gravel Brown silty SAND with organics (dry) (no odor) (fill)		Time: 0906
150				3 3 4	67	3.6					0908
	5			4 16 23	67	7.7			Grading decreasing organics		0913
				16 21 25	83	17.9		SP	Light gray-brown medium to coarse SAND with some gravel (dense) (dry) (no odor) (till)		0915
	10			41 50/6"	100	10.9					0919
				25 41 50/6"	75	1.6		SM	Light gray-brown silty SAND (dense) (dry) (no odor)		0926
140	15			26 30 32	83	3.6		SP	Light gray-brown gravelly SAND interbedded with some silt (dense) (dry) (no odor)		0930
			MW-3-17.5	34 41 50/6"	100	6.6		SM	Light gray-brown silty SAND with some gravel (dense) (dry) (no odor)		0932
	20			32 41 50/6"	100	2.6		SP	Medium gray-brown gravelly SAND with pea gravel (damp) (no odor)		0937
				37 41 50/6"	100	1.1			Grading coarser sand		1008
130	25			41 41 50/6"	100	0.5		SM	Medium gray-brown silty SAND with interbedded silt (damp) (no odor) 27 ft ▼		1012
			MW-3-27.5	28 37 40	100	0.3			Grading wet, dense		1016
	30			30 43 40	100	1.4			Boring was completed to 30' bgs. Groundwater was encountered at 27' bgs. Monitoring well installed on 8/26/08 as follows: Screen: 20-slot 2" Sch 40 PVC 20'-30' bgs Riser: 0'-20' bgs Sand pack: 2/12 sand 18'-30' bgs Bentonite chips: 2'-18' bgs Surface completion: 6" flush mount set in concrete		1021
120	35										

ENV2 WITH WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-MW-4

Sheet 1 of 1

Date(s) Drilled	8/26/08	Logged By	JW	Checked By	
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole	30 feet bgs
Drill Rig Type		Drill Bit Size/Type	8"	Ground Surface Elevation	153.41 feet MSL
Groundwater Level	~27 ft bgs	Sampling Method	Split Spoon - D&M	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
	0								Surface: Asphalt Potholed to 6'		Time: 0715
150	5							SP/ SM	Light grayish-brown silty SAND/gravelly SAND with pea gravel (dense) (dry) (no odor) (fill)		
				36 50/6"	100	1.5					0720
	10			37 50/6"	100	1.9		SM	Light grayish brown silty SAND with fine gravel (dense) (dry) (no odor)		0723
140			MW-4-12.5	41 50/6"	67	3.7			Grading decreasing fines		0726
	15			34 50/6"	83	2.8					0731
				32 50/6"	100	3.4			Grading mostly fine SAND, less gravel (dense) (damp)		0734
	20			37 50/6"	100	4.6		SP	Light gray-brown fine SAND (dense) (damp) (no odor)		0737
130				38 50/6"	100	5.5			Grading medium to fine SAND (damp)		0740
	25			39 50/6"	100	4.7					0742
									27 ft ▼		
				36 50/6"	100	2.2			Grading wet		0744
	30			41 50/6"	100	4.1			Boring was completed to 30' bgs. Groundwater was encountered at 27' bgs. Monitoring well installed on 8/26/08 as follows: Screen: 20-slot 2" Sch 40 PVC 20'-30' bgs Riser: 0'-20' bgs Sand pack: 2/12 sand 18'-30' bgs Bentonite chips: 2'-18' bgs Surface completion: 6" flush mount set in concrete		0747
120	35										

ENV2 WITH WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization Project Location: Bellevue, Washington Project Number: 33761152	Log of Boring URS-SB-1 Sheet 1 of 2

Date(s) Drilled	8/25/08	Logged By	JW	Checked By	
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole	75 feet bgs
Drill Rig Type		Drill Bit Size/Type	8"	Ground Surface Elevation	ft MSL
Groundwater Level (feet bgs)	35 ft and 75 ft bgs	Sampling Method	Split Spoon - D&M	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0							SM	Surface: Asphalt Gray-brown silty SAND with some organics (loose) (dry) (fill)	Time: 0935
				5 4 4	89	5.2				0940
	5			8 20 28	89	2.2			Grading 6" of woody debris (denser)	0944
				23 24 25	67	2.8			Grading light gray-brown	0946
	10		SB-1-10	31 50/6"	83	4.7		SP	Light gray-brown SAND (dense) (dry)	0948
				50/6"	100	2.5		SM	Light gray brown silty SAND, cobble fragments (no odor)	0952
	15			31 50/6"	83	2.0		SP	Light gray brown medium to fine SAND (dry) (no odor)	0955
				21 28 33	100	2.1				0958
	20			32 50/6"	75	1.0				1000
				38 50/6"	100	1.5			Grading light gray brown interbedded sands, some silt (dry)	1003
	25			44 50/6"	75	1.7				1007
				44 50/6"	100	1.6			Grading damp	1009
	30		SB-1-30	42 50/6"	100	1.7			Grading increasing moisture	1011
				50/6"	100	3.0				1014
	35			50/6"	100	1.2			35 ft ▼ Light brown-gray gravelly SAND with large cobble fragments (dense) (wet)	1017
								SP		

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ENV2 W/O WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-SB-1

Sheet 2 of 2

Elevation, feet / Downhole Depth, feet	SAMPLES: Type Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
		50/6"	100	1.8			Grading interbedded sand and gravel	1019
40		50/6"	67	0.0		SP/ SM	Gray-brown silty SAND with fine gravel (damp) (no odor)	1023
		50/6"	100	0.4			Grading interbedded sand and cobbles (no odor)	1026
45	SB-1-45	50/6"	100	2.6		SM	Medium gray silty SAND (dense) (dry) (no odor)	1039
		50/6"	100	3.1				1042
50		43 50/6"	75	1.5				1045
		38 50/6"	75	2.2				1048
55		50/6"	100	2.2			Grading silty medium to fine SAND (dense) (dry) (no odor)	1051
		50/6"	100	1.3				1054
60		50/6"	67	0.9				1058
		50/6"	100	1.7		SP	Gray medium to fine SAND (homogenous) (dense) (damp) (no odor)	1100
65		50/6"	100	1.3				1103
		42 50/6"	100	1.6				1106
70		31 50/6"	100	2.5				1110
		27 35 40	100	2.9				1112
75	SB-1-75	35 50/6"	50	2.3			Grading wet at very bottom of interval ▼ Boring was completed to 75' bgs. Groundwater was encountered at 35' and 75' bgs. Boring was backfilled with bentonite.	1115
80								

ENV2 W/O WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-SB-2

Sheet 1 of 1

Date(s) Drilled	**8/25/08**	Logged By	**JW**	Checked By	
Drilling Method	**HSA**	Drilling Contractor	**Cascade Drilling**	Total Depth of Borehole	**30 feet bgs**
Drill Rig Type		Drill Bit Size/Type	**8"**	Ground Surface Elevation	**ft MSL**
Groundwater Level (feet bgs)	**~23 ft bgs**	Sampling Method	**Split Spoon - D&M**	Hammer Data	
Borehole Backfill		Location			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0							SP	Surface: Asphalt with gravel cover Gray and brown SAND (no odor) (fill)	Time: 1308
				5 5 4	100	48.7				1310
	5			3 3 4	100	2.9			Grading some wood debris	1314
				5 9 23	100	9.2		SM	Gray-brown silty SAND, rust colored in part (slightly damp) (no odor) (till)	1316
	10		SB-2-10	16 26 30	67	10.5			Grading homogenous, denser (dry)	1318
				18 23 27	100	4.3		SP	Light gray-brown SAND, interbedded sand with gravel (no odor)	1323
	15			23 38 23	67	1.9				1327
				43 50/6"	83	3.6			Grading interbedded gravel (damp) (no odor)	1329
	20			28 50/6"	50	2.4		SM	Brown silty SAND (damp) (no odor)	1332
				34 50/6"	100	1.3		SP	Brown SAND (wet) 23 ft ▼	1335
	25			38 50/6"	100	2.9			Grading increasing gravel	1338
			SB-2-27.5	42 50/6"	100	15.8		SM	Brown silty SAND (dense) (no odor)	1348
	30			43 50/6"	100	2.4			Grading increasing gravel Boring was completed to 30' bgs. Groundwater was encountered at 23' bgs. Boring was backfilled with bentonite.	1350
	35									

ENV2 W/O WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization
Project Location: Bellevue, Washington
Project Number: 33761152

Log of Boring URS-SB-3

Sheet 1 of 1

Date(s) Drilled	8/26/08	Logged By	JW	Checked By	
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole	30 feet bgs
Drill Rig Type		Drill Bit Size/Type	8"	Ground Surface Elevation	ft MSL
Groundwater Level (feet bgs)	~20 ft bgs	Sampling Method	Split Spoon - D&M	Hammer Data	
Borehole Backfill		Location			

Elevation, feet / Downhole Depth, feet	SAMPLES: Type / Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0						SP	Surface: Asphalt with gravel	Time: 1149
		6 7 9	100	0.0			Brown medium to coarse SAND with pea gravel (loose) (dry) (no odor) (fill)	1153
5		5 7 10	83	0.0				1155
		6 9 11	100	0.0			Grading increasing gravel	1157
10		11 12 14	100	0.2				1159
		10 12 17	100	0.1		SP	Brown fine to coarse SAND with cobble pieces to 1.5" (dry) (no odor) (till)	1201
15		8 15 17	33	0.0		GP	Brown GRAVEL and SAND	1204
	SB-3-17.5	8 13 19	56	0.0			Grading with black staining (dry) (no odor)	1208
20		32 50/6"	100	2.8		SM	20 ft ▼ Light gray-brown silty SAND with lenses of fines (dense) (wet) (no odor)	1211
	SB-3-22.5	29 50/6"	100	0.9		SP	Light gray brown SAND (dense) (wet) (no odor)	1214
25		45 50/6"	100	0.0		SM	Light gray to brown silty SAND (attempt to sample groundwater)	1215
		44 50/6"	100	0.7			Grading increasing fines and cobbles (dense) (dry)	1350
30		41 50/6"	100	0.0			Grading decreasing gravel (dense) (dry)	1353
35							Boring was completed to 30' bgs. Groundwater was encountered at 20' bgs. Set temporary well, groundwater sample SB-3-082708 at 7:04 am on 8/27/08. Boring was backfilled with bentonite.	

ENV2 W/O WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

URS

Project: Sterling Realty Organization Project Location: Bellevue, Washington Project Number: 33761152	Log of Boring URS-SB-4 Sheet 1 of 1

Date(s) Drilled	8/27/08	Logged By	JW	Checked By	
Drilling Method	HSA	Drilling Contractor	Cascade Drilling	Total Depth of Borehole	30 feet bgs
Drill Rig Type		Drill Bit Size/Type	8"	Ground Surface Elevation	ft MSL
Groundwater Level (feet bgs)	~29 ft bgs	Sampling Method	Split Spoon - D&M	Hammer Data	
Borehole Backfill		Location			

Elevation, feet / Downhole Depth, feet	SAMPLES: Type / Number	Blows/ 6in.	Recovery (%)	OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0						SP/ SM	Surface: Asphalt	Time: 0921
		27 23 25	100	4.0			Light gray-brown medium to fine SAND with large cobble fragments (dense) (dry) (no odor)	0925
5		29 35 37	100	4.4				0929
		50/6"	100	3.0		SP	Light brown medium to fine SAND with fine gravel (very dense) (dry)	0932
10		38 50/6"	100	9.3*			Grading fine to coarse gravel	0935
		34 50/6"	100	16.1*				0937
15		38 50/6"	100	10.7*				0940
	SB-4-17.5	37 50/6"	75			SM	Light gray-brown silty SAND, stratified (dense) (dry)	0943
20		41 50/6"	100					0946
		41 50/6"	100			SP	Gray-brown SAND (dense) (slightly damp) (no odor)	0949
25		43 50/6"	33					0951
		50/6"	100				Grading increasing moisture	0954
							29 ft ▼	
30	SB-4-30	50/6"	100			SM	Silty SAND (dense) (dry at bottom of interval, wet just above)	0957
							Boring was completed to 30' bgs. Groundwater was encountered at 29' bgs. Boring was backfilled with bentonite.	* PID not zeroing out
35								

ENV2 W/O WELL T:\ONEWORLD\33761152 SRO PROPERTY\33761152.GPJ URSSEA3B.GLB URSSEA3.GDT 9/17/08

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