

3458 Third Avenue, Bronx, New York

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# Remedial Investigation Report

NYC VCP Site Number: 10EHAZ207X

**Prepared for:**

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# REMEDIAL INVESTIGATION REPORT

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## LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

# CERTIFICATION

I, Paul Ciminello, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 3458 Third Avenue, Bronx, (NYC VCP Site No. 10EHAZ207X). I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Paul H. Ciminello

8/6/13



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Qualified Environmental Professional

Date

Signature

# EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

## **Site Location and Current Usage**

The Site is located in the Morrisania section of the Bronx and is identified as Block 2609, Lot 2 (see Figure 2: Site Location Map). Currently, the Site is a paved parking lot used by customers of the supermarket in the adjoining structure to the north.

## **Summary of Proposed Redevelopment Plan**

The development project consists of the construction of a six story building to be used for retail space (1st floor) and a charter school (2nd through 6th floors). The building will have a partial basement (excavated to a depth of ten feet below surface grade (bsg)) and will have a total height of 92 feet. A small rear yard will be present in the northeast corner of the Site; all other portions of the site will be covered by the building.

## **Summary of Past Uses of Site and Areas of Concern**

A Middleton Environmental Phase I Update, dated March 3, 2008 was performed on the adjoining property to the north and the northern half of the subject property (a copy of this document is included as Appendix 1). Very little information in the Phase I Update pertains to the project site; however, the historical presence of numerous industrial processes on the adjoining property to the north are documented. A P.W. Grosser Phase II investigation, dated September 4, 2006, for the northern adjoining property (a copy of this document is included as Appendix 2) documented the presence of elevated concentrations of chlorinated solvents in the groundwater at well B1/TW-1 located immediately north of the site. Cis 1,2 dichloroethene was detected at 2,600 ug/L, tetrachloroethene was detected at 1,600 ug/L, trichloroethylene was detected at 680 ug/L and vinyl chloride was detected at 290 ug/L.

These historical data suggested that soils, soil vapor and/or groundwater at the project site have potentially been impacted by these adjoining site conditions and historic uses.

## **Summary of the Work Performed under the Remedial Investigation**

3462 Third Avenue Realty LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 12 soil borings across the entire project Site, and collected 19 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 2 groundwater monitoring wells throughout the Site (a third well [MW-3] that had been installed by Yu Associates as part of a geotechnical investigation in November 2012 was already present in the southwestern corner of the site) to establish groundwater flow and collected 3 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 4 soil vapor probes around the Site perimeter and collected 4 samples for chemical analysis.

## **Summary of Environmental Findings**

1. Elevation of the property ranges from 40 feet at the western property line to 51 feet at the eastern property line.
2. Depth to groundwater ranges from between 13.92 feet and 17.10 feet bsg at the Site.
3. Groundwater flow is generally from north to south beneath the Site.
4. Depth to bedrock is approximately 30 feet at the western side of the site and approximately 8 feet at the eastern side of the Site, based on field observations and geotechnical borings extended by Yu Associates as documented in a Geotechnical Report, dated November 9, 2012 (a copy of this document is included as Appendix 3).
5. The stratigraphy of the site, from the surface down, consists of approximately 8 feet of reddish brown sand underlain by historic fill to 18 feet. The fill is generally coarse to fine sand with varying amounts of silt, clay and coarse to fine gravel with

occasional fragments of brick, concrete, wood, metal and rock. The fill is underlain by various thicknesses of weathered bedrock overlaying competent bedrock.

6. Soil/fill samples collected during the RI showed no field evidence of contamination; however, elevated concentrations of SVOCs, pesticides and arsenic, above Restricted Residential Use SCOs (RR SCOs), were detected in the B-1 (10'-12') sample. Metals at concentrations above RR SCOs were detected in most of the samples. Concentrations of pesticides above Unrestricted Use SCOs were detected in all samples submitted for analysis. These findings support the conclusion that soils generated during construction excavations will require management and disposal as non-hazardous regulated waste. The results of chemical analysis of on-site soil samples are considered typical of poor quality urban fill.
7. Groundwater samples collected during the RI showed no field evidence of contamination, but elevated concentrations of chlorinated solvents, above groundwater protection standards, were detected in all samples with peak concentrations in MW-3, located in the southwest portion of the site. The detected concentrations are consistent with a previous investigation of the adjoining property to the north, where elevated concentrations of chlorinated solvents had been detected in a monitoring well immediately north of the site (see section 2.2 below). Soil borings extended in the vicinity of MW-3 documented the absence of CVOCs at concentrations above laboratory minimum detection limits in on-site soils, supporting the conclusion that an on-site source of the groundwater contamination is unlikely.
8. Soil vapor samples collected during the RI showed the presence of low levels of trichloroethylene in all samples. An elevated concentration of tetrachloroethylene was detected in SV-2 (near monitoring well MW-3) supporting the conclusion that chlorinated solvent impacts to the subsurface may be most significant in the southwestern portion of the property.

# REMEDIAL INVESTIGATION REPORT

## 1.0 SITE BACKGROUND

3462 Third Avenue Realty LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 0.17-acre site located at 3458 Third Avenue in the Morrisania section of Bronx, New York. Mixed commercial and institutional (charter school) use is proposed for the property. The RI work was performed between April 9 and April 13, 2013. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

### 1.1 Site Location and Current Usage

The Site is located in the Morrisania section of the Bronx and is identified as Block 2609, Lot 2 (see Site Location Map, Figure 2 of this Remedial Investigation Report). Currently, the Site is a paved parking lot used by customers of a supermarket located on the first floor of the adjoining structure to the north. A map of the site boundary is shown in Figure 1 and Figure 2 shows the Site location.

### 1.2 Proposed Redevelopment Plan

The development project consists of the construction of a six story building to be used for retail space (1st floor) and a charter school (2nd through 6th floors). The building will have a partial basement (excavated to a depth of ten feet bsg) and will have a total height of 92 feet. A small rear yard will be present in the northeast corner of the Site; all other portions of the site will be covered by the building. Layout of the proposed site development is presented in Figure 4.

### 1.3 Description of Surrounding Property

The project site is located in a M1-1/ R7-2 zone with an R6 zone to the east and an R7-1 zone to the west. An apartment building with retail facilities on the first floor adjoins to the north and a similar apartment building with a day care center on the first floor adjoins to the northwest. A carwash, which is a registered PBS facility, adjoins to the west; a park adjoins to

the south and an unmarked warehouse adjoins to the east. Figure 3 shows the surrounding land usage.

## **2.0 SITE HISTORY**

### **2.1 Past Uses and Ownership**

A Middleton Environmental Phase I Update, dated March 3, 2008, was performed on the adjoining property to the north and the northern half of the site. Very little information in the Phase I Update pertains to the subject property; however, the historical presence of numerous industrial processes on the adjoining property to the north are documented.

### **2.2 Previous Investigations**

A P.W. Grosser Phase II investigation, dated September 4, 2006, for the northern adjoining property and the northern half of the project site documented the presence of elevated concentrations of chlorinated solvents in the groundwater. A groundwater sample from a temporary monitoring well (well number: B-1/TW-01) located immediately north of the property line dividing the site from the northern adjoining property contained cis 1,2 dichloroethene at a concentration of 2,600 ug/L, tetrachloroethene at 1,600 ug/L, trichloroethylene at 680 ug/L and vinyl chloride at 290 ug/L. The adjoining site to the north has since been remediated and developed; however, the site has a Little E designation (E-118 Hazmat) that is likely to have been generated by the presence of these known conditions.

### **2.3 Site Inspection**

The project site is an asphalt-paved parking lot used by customers of the supermarket adjoining to the north. The site slopes moderately down from east to west towards 3<sup>rd</sup> Avenue.

### **2.4 Areas of Concern**

The AOCs identified for this site include:

1. Soils, soil vapor and/or groundwater potentially contaminated with chlorinated solvents.

Phase 1 and Phase II Reports are presented as Appendices 1 and 2.

## 3.0 PROJECT MANAGEMENT

### 3.1 Project Organization

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Paul Ciminello of ESI. Fieldwork was performed by Richard Hooker of ESI.

### 3.2 Health and Safety

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

### 3.3 Materials Management

All material encountered during the RI was managed in accordance with applicable laws and regulations.

## 4.0 REMEDIAL INVESTIGATION ACTIVITIES

3462 Third Avenue Realty LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 12 soil borings across the entire project Site, and collected 19 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 2 groundwater monitoring wells throughout the Site (a third well [MW-3] that had been installed by Yu Associates as part of their geotechnical investigation in November 2012 was already present in the southwestern corner of the site) to establish groundwater flow and collected 3 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 4 soil vapor probes around Site perimeter and collected 4 samples for chemical analysis.

## **4.1 Geophysical Investigation**

A Yu Associates Geotechnical Investigation Report, dated November 2012, described the site as underlain by miscellaneous fill atop glacial till and bedrock in various states of weathering and decomposition. In general, bedrock is shallower on the east side of the site than the west side of the site.

The entire site is covered by 3-4" of asphalt pavement. Historic fill material is present throughout the site at depths between 8' and 18' bsg. The fill is of variable density and generally consists of coarse to fine sand with varying amounts of silt, clay, coarse to fine gravel with occasional fragments of brick, concrete, wood, metal and rock. Except at the far eastern side of the site, the fill is underlain by glacial till and/or residual soil. The till is comprised of micaceous fine sand and hard silt and clay with various amounts of gravel. The residual soil is comprised of weathered bedrock that has decayed to the extent that no rock structure is visible. The top of this stratum was encountered at depths between 14' and 18' bsg.

Beneath the till and residual soil is weathered to highly weathered bedrock. On the eastern side of the site this material was encountered at depths between 8' and 22' bsg; on the western side of the site it was encountered at depths of 35' and 50' bsg. This stratum is intermittently soil-like in consistency with intact pieces of the parent rock. Competent bedrock was encountered at 18' bsg at the eastern side of the site and consists of slightly weathered medium to strong gneiss with very closely spaced fractures. Groundwater was documented in borings left open overnight at 22.5' bsg in the western third of the site, 14.5' bsg in the middle third of the site, and, 15.1' bsg along the eastern third of the site.

## **4.2 Borings and Monitoring Wells**

### **Drilling and Soil Logging**

Seven borings (B-1 through B-6, and B-8) were extended at the site to a depth of 12' bsg (two feet deeper than the depth of proposed construction excavations) using a truck mounted drill rig with a 2' split spoon sampler. Five borings (2B-1 through 2B-5) were extended at the site to a depth of 20' bsg using a track mounted drill rig with a 4' sample tube. Borings were continuously sampled and screened by visual and olfactory means and a calibrated PID. No field evidence of contamination was found in any of the borings and no positive PID readings were recorded.

Boring logs prepared by field personnel are attached in Appendix 4. A map showing the location of soil borings and monitor wells is shown in Figure 5.

### **Groundwater Monitoring Well Construction**

Two, two-inch temporary monitoring wells (MW-1 and MW-2) were installed at the site. The wells were set at 22' and 25', respectively, with 10' of screening extending 2' above the groundwater interface and 8' below. A third two-inch monitoring well was already present in the southwest corner of the site. Available information indicates the well had been installed by Yu & Associates in 2012 as part of their geotechnical investigation. Yu & Associates had named the well "B-7 OW" and in their records it is described as 27' deep with 10' feet of screening to 17'. Hereinafter this preexisting monitoring well is referred to as MW-3

Monitor well locations are shown in Figure 5.

### **Survey**

Boring and monitoring well locations were measured to the two nearest property lines to within 1". These measured locations included in Table 4.

### **Water Level Measurement**

Groundwater wells were gauged with a water level meter to record a depth to groundwater reading (1/100 foot). The well casings were surveyed by a trained QEP to facilitate preparation of a groundwater contour map and determine the direction of groundwater flow.

Water level data is included in Appendix 5.

### **4.3 Sample Collection and Chemical Analysis**

Sampling performed as part of the field investigation was conducted for all Areas of Concern and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. All media including soil, groundwater and soil vapor have been sampled and evaluated in the RIR. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in

this RIR provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

### **Soil Sampling**

Mechanical soil borings were extended throughout the Site using a truck-mounted drill rig. Soil borings were continuously sampled between the surface and 12' bsg in 2 foot increments. Five borings (2B-1 through 2B-5) were extended at the site to a depth of 20' bsg using a track mounted drill rig with a 4' sample tube. No field evidence of contamination or positive PID readings were encountered during the extension of borings. The sampling instrument was decontaminated prior to the initiation of fieldwork and after the collection of each sample. Decontamination procedures were consistent with established NYSDEC protocols.

All soil samples collected by ESI were obtained in a manner consistent with NYSDEC sample collection and decontamination protocols. All field personnel wore dedicated, disposable gloves, and all samples were placed into laboratory supplied glassware. Samples were collected directly from the split spoon sampler. The sample collection instrument was decontaminated, as warranted, prior to the collection of each material sample, to avoid cross-contamination between samples. VOC samples were collected following USEPA Method 5035.

All sample containers were placed in a cooler immediately after sample collection and were maintained at cold temperatures prior to transport to the laboratory. The soil samples were transported on the following day via courier to York Analytical Laboratories, Inc. (York Laboratories), a New York State Department of Health-certified laboratory (ELAP Certification Number 10854) for chemical analyses. Appropriate chain-of-custody procedures were followed.

Twenty samples were collected during this RI and eleven were submitted for laboratory analysis. Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Table 4. Figure 6 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

### **Groundwater Sampling**

Prior to sampling, each monitoring well casing was opened and the well column was immediately screened with a PID to document the presence of any volatile organic vapors. All

wells were purged and sampled following the USEPA Low-Flow Method. All sampling was conducted using a Horiba U52 Multi Water Quality Checker, dedicated plastic tubing, and a peristaltic pump. All wells were purged at a flow rate between 100 and 200 ml per minute, for a period of no less than 15 minutes. Flow rate was determined using a graduated cylinder and a stopwatch.

Sample collection occurred when the field parameters stabilized (achieved when three consecutive readings were within the required parameters specified by the USEPA protocol). Each groundwater sample was collected in laboratory supplied glassware and preserved with acid as appropriate for the specific analysis. No groundwater samples were filtered prior to submission to the laboratory. After sample collection, the containers were placed in a cooler prior to transport to the laboratory. All samples were accompanied by proper chain of custody documentation. Three groundwater samples were collected for chemical analysis during this RI. Groundwater sample collection data is reported in Table 2. Sampling logs with information on purging and sampling of groundwater wells is included as Appendix 5. Figure 7 shows the location of groundwater sampling. Laboratories and analytical methods are shown below.

### **Soil Vapor Sampling**

Four soil vapor probes were installed and four soil vapor samples were collected for chemical analysis during this RI. Soil vapor sampling locations are shown in Figure 8. Soil vapor sample collection data is reported in Table 3. Soil vapor sampling logs indicating start and end pressures for the Summa canisters are documented on the COC for the samples and included in Appendix 7. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006*. Samples were collected in 5 liter Summa canisters (with 2 hour flow regulators) that had been certified clean by the laboratory and the samples were analyzed by using USEPA Method TO-15. Flow rate for both purging and sampling did not exceed 0.2 L/min. 24-hours following soil vapor probe installation, one to three implant volumes were purged prior to the collection of the soil-gas samples. A sample log sheet was maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, and chain of custody protocols.

As part of the vapor intrusion evaluation, helium was used as a tracer gas in accordance with NYSDOH protocols to serve as a quality assurance/quality control device to verify the integrity of the soil vapor probe seal. A stainless steel container served to keep the tracer gas in contact with the probe during testing. The samples were then analyzed for helium to document the presence of surface air penetration into the sample zone.

### Chemical Analysis

Chemical analytical work presented in this RIR has been performed in the following manner:

Factor	Description
Quality Assurance Officer	The chemical analytical quality assurance was directed by Richard Hooker
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the RI is NYS ELAP certified and York Analytical Laboratories (ELAP Number 18054)
Chemical Analytical Methods	<p>Soil analytical methods:</p> <ul style="list-style-type: none"> <li>• TAL Metals by EPA Method 6010C (rev. 2007);</li> <li>• VOCs by EPA Method 8260C (rev. 2006);</li> <li>• SVOCs by EPA Method 8270D (rev. 2007);</li> <li>• Pesticides by EPA Method 8081B (rev. 2000);</li> <li>• PCBs by EPA Method 8082A (rev. 2000);</li> </ul> <p>Groundwater analytical methods:</p> <ul style="list-style-type: none"> <li>• TAL Metals by EPA Method 6010C (rev. 2007);</li> <li>• VOCs by EPA Method 8260C (rev. 2006);</li> <li>• SVOCs by EPA Method 8270D (rev. 2007);</li> <li>• Pesticides by EPA Method 8081B (rev. 2000);</li> <li>• PCBs by EPA Method 8082A (rev. 2000);</li> </ul> <p>Soil vapor analytical methods:</p> <ul style="list-style-type: none"> <li>• VOCs by TO-15 VOC parameters.</li> </ul>

## **Results of Chemical Analyses**

Laboratory data for soil, groundwater and soil vapor are summarized in Table 1, 2, and 3, respectively. Laboratory data deliverables for all samples evaluated in this RIR are provided in digital form in Appendix 6, 7, and 8.

## **5.0 ENVIRONMENTAL EVALUATION**

### **5.1 Geological and Hydrogeological Conditions**

#### **Stratigraphy**

Fill comprised of sandy soil mixed with hard clay, rock and brick fragments was encountered at all boring locations and weathered bedrock was encountered at depths between 5' and 10' bsg at the eastern side of the site.

#### **Hydrogeology**

Water level data for all monitor wells is included in Table 4. The average depth to groundwater is 15.6 feet and the range in depth is 13.92' to 17.10'. A map of groundwater level elevations with groundwater contours and inferred flow lines is shown in Figure 5. Groundwater flow is from north to south.

### **5.2 Soil Chemistry**

A Track 4 remedy is anticipated for the site and contamination concentrations in the soil are therefore compared with NYSDEC BCP "Restricted Residential Use" SCOs.

Soil sample data document the presence of pesticides in surface and subsurface soils throughout the site. The peak pesticide concentration detected was 4,4'- DDT at 3,260 ug/Kg in B-1 (10-12'), which is above the RR SCO of 1,700 ug/Kg. Dieldrin (RR SCO 39 ug/Kg) was detected at 179 ug/Kg. No other pesticides were detected above RR SCOs in any of the samples, but pesticides above Unrestricted SCOs were detected in samples throughout the site.

Six SVOCs were detected above RR SCOs in sample B1 (10'-12'). The peak SVOC concentration was benzo (b) fluoranthene (RR SCO 1,000 ug/Kg) at 2,700 ug/Kg. No SVOCs were detected above laboratory minimum detection limits in any of the other soil samples.

Metals were detected above RR SCOs in all samples. Iron was detected above the RR SCO of 2,000 mg/Kg in all samples and a peak concentration of 24,500 mg/Kg was documented in sample B-6 (0-2'). Barium was also detected above the RR SCO of 350mg/Kg in all samples with the exception of B-6 (0-2'). The peak barium concentration of 1,750mg/Kg was detected in sample B-2 (0-2'). Arsenic was detected above the RR SCO of 16 mg/Kg in B-1 (10'-12') at a concentration of 41 mg/Kg. No other metals were detected above their RR SCOs in any of the other samples.

NO VOCs or PCBs were detected above laboratory minimum detection limits in any of the samples.

Data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. A summary table of data for chemical analyses performed on soil samples is included in Table 1. Figure 6 shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 and 4 Soil Cleanup Objectives.

### 5.3 Groundwater Chemistry

Elevated concentrations of chlorinated solvents were detected in all three wells. The peak chlorinated solvent concentration detected was cis-1,2-dichloroethylene (guidance level 5 ug/L) at 4,500 ug/L in MW-3. In the same well tetrachloroethylene (guidance level 5 ug/L) was detected at 2,200 ug/L, trichloroethylene (guidance level 5 ug/L) at 1,200, vinyl chloride guidance level (2 ug/L) at 700 ug/L, and, trans-1,2-dichloroethylene (guidance level 5 ug/L) at 34 ug/L. Five other VOCs at concentrations below their respective guidance level were detected in the same well.

Chlorinated solvents at lower concentrations were detected in wells MW-1 and MW-2. Tetrachloroethylene was detected at 32 ug/L in MW-1, which also contained cis-1,2-dichloroethylene at 12 ug/L and chloroform (guidance level 7 ug/L) at 16 ug/L. MW-2 contained tetrachloroethylene at 22 ug/L, cis-1,2-dichloroethylene at 13 ug/L and chloroform at 7.2 ug/L. All three water samples also contained low concentrations of methylene chloride, a common laboratory contaminant and unlikely to be representative of site conditions.

All the wells contained low-level exceedances of metals, but no SVOCs, PCBs or pesticides were detected at concentrations above guidance levels in any of the samples.

The presence of chlorinated solvents in on-site groundwater (together with the absence of chlorinated solvents in on-site soils) supports the conclusion that there may be a nearby off-site, source of this contamination. The documented pesticide and SVOC contaminated on-site soils do not appear to have impacted site groundwater.

Data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site. A summary table of data for chemical analyses performed on groundwater samples is included in Table 2. Exceedances of applicable groundwater standards are shown.

Figure 7 shows the location and posts the values for groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

#### 5.4 Soil Vapor Chemistry

An elevated concentration of tetrachloroethylene (guidance level 100ug/L) was detected at 1,300 ug/L in sample SV-2. Trichloroethylene (guidance level 5 ug/L) was detected at 40 ug/L in the same sample. Trichloroethylene was detected at 38 ug/L in SV-1 and at 8.5 ug/L in SV-4. No other significant concentrations of VOCs were detected in any of the samples. The location of SV-2 near MW-3 supports the conclusion that chlorinated solvent impacts to the site are most significant in the southwest portion.

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in Table 3.

Figure 8 shows the location and posts the values for soil vapor samples with detected concentrations.

## 5.5 Prior Activity

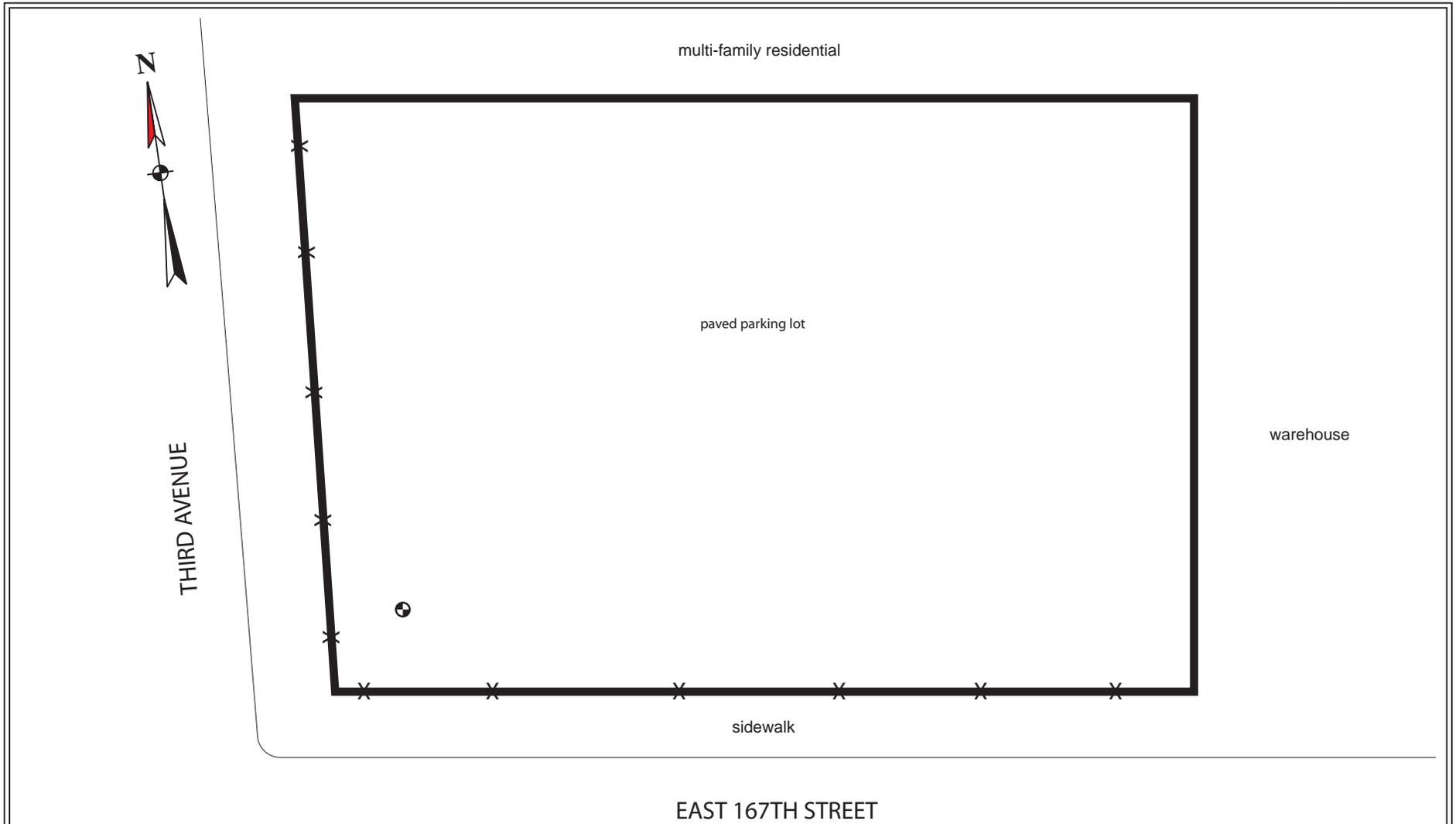
Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

## 5.6 Impediments to Remedial Action

There are no known impediments to remedial action at this property.



## Figures



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

**Figure 1: Site Map**  
 3458 Third Avenue  
 Borough of Bronx, New York

Legend:

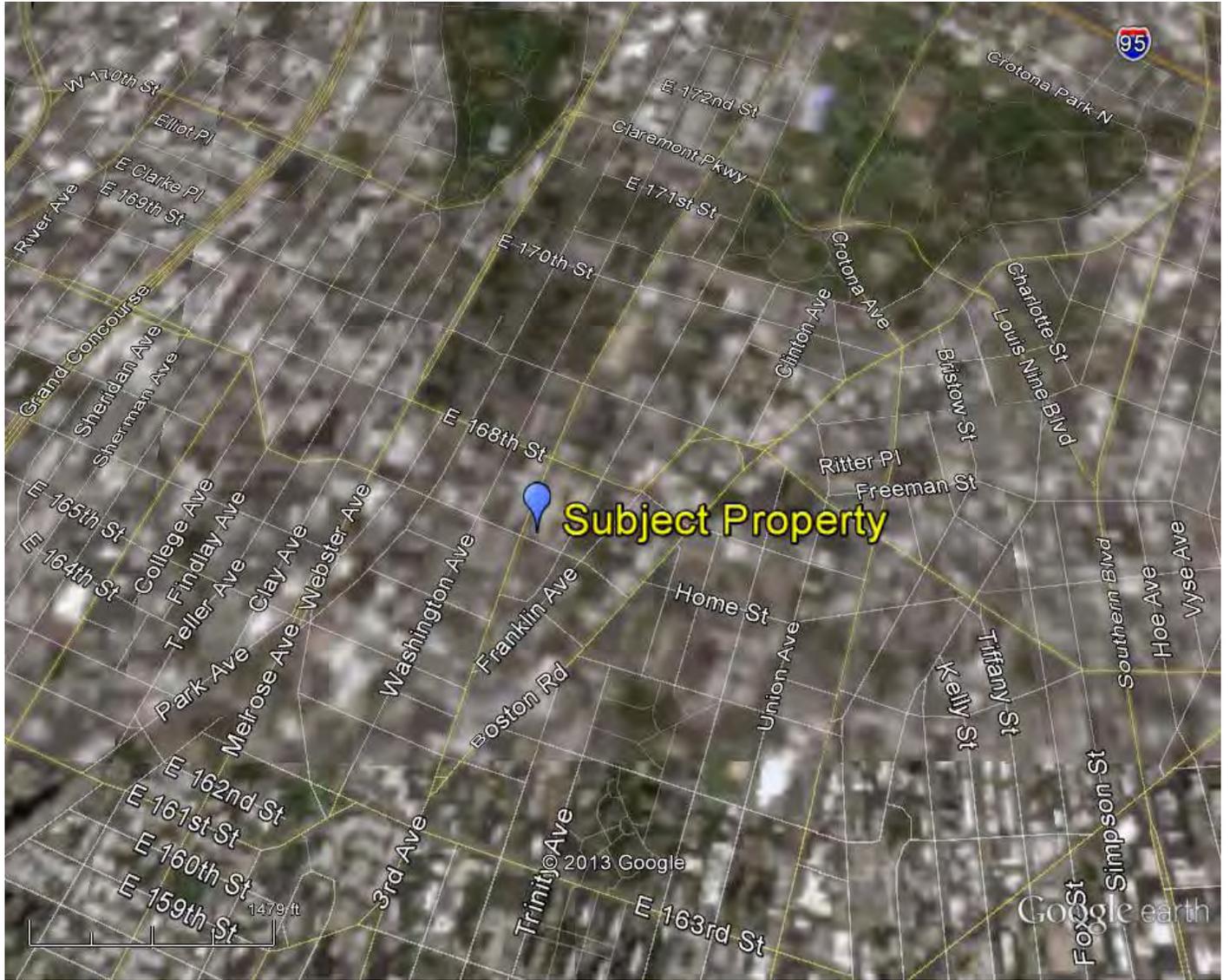
-  subject property border
-  chain link fence
-  pre-existing monitoring well location

ESI File: KB07097.20

August 2013

1" = 20' approximately

Figures



**Figure 2: Site Location Map**

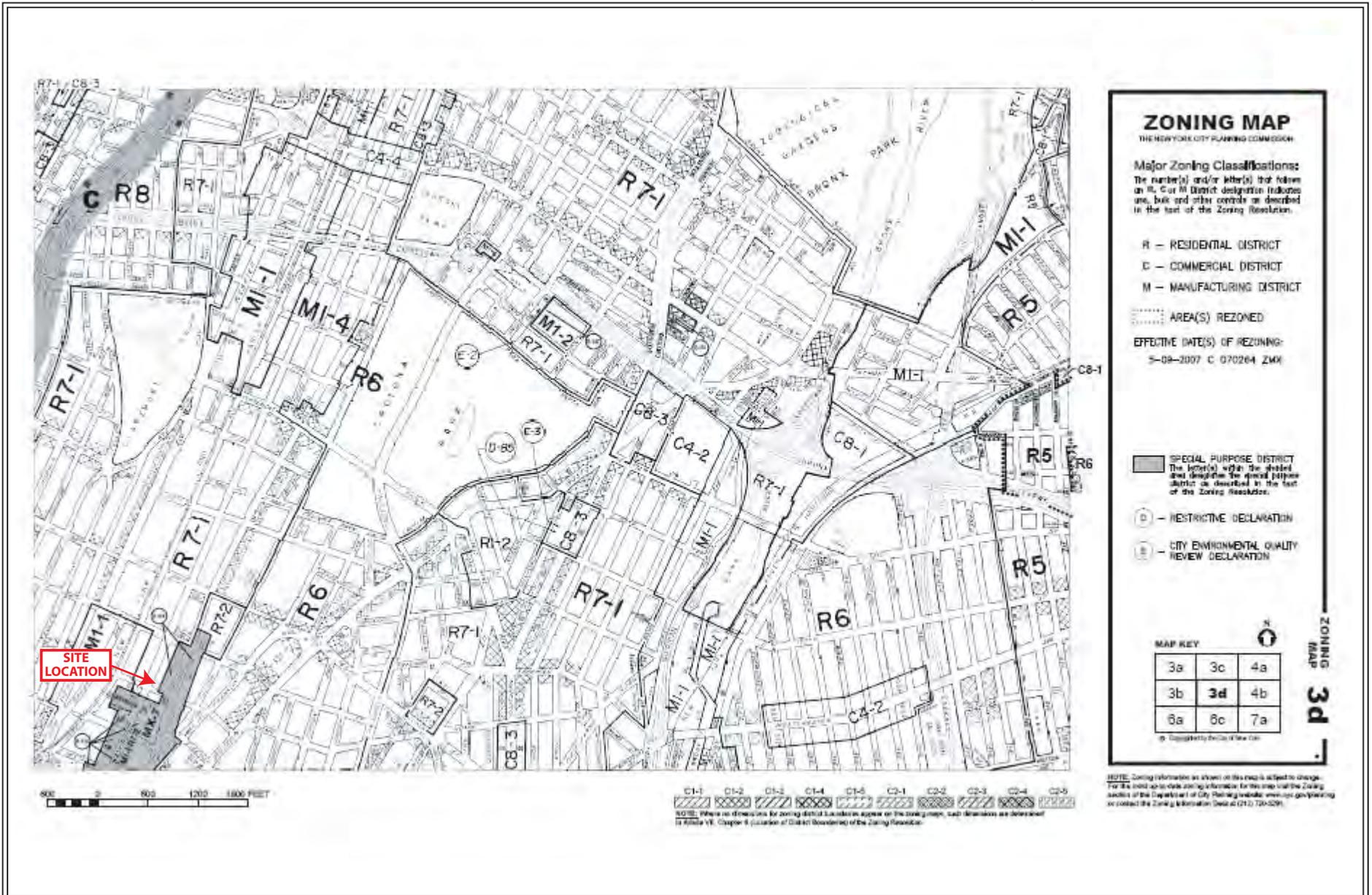
3458 Third Avenue  
Borough of Bronx, New York



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**Figure 3 - Zoning Map**

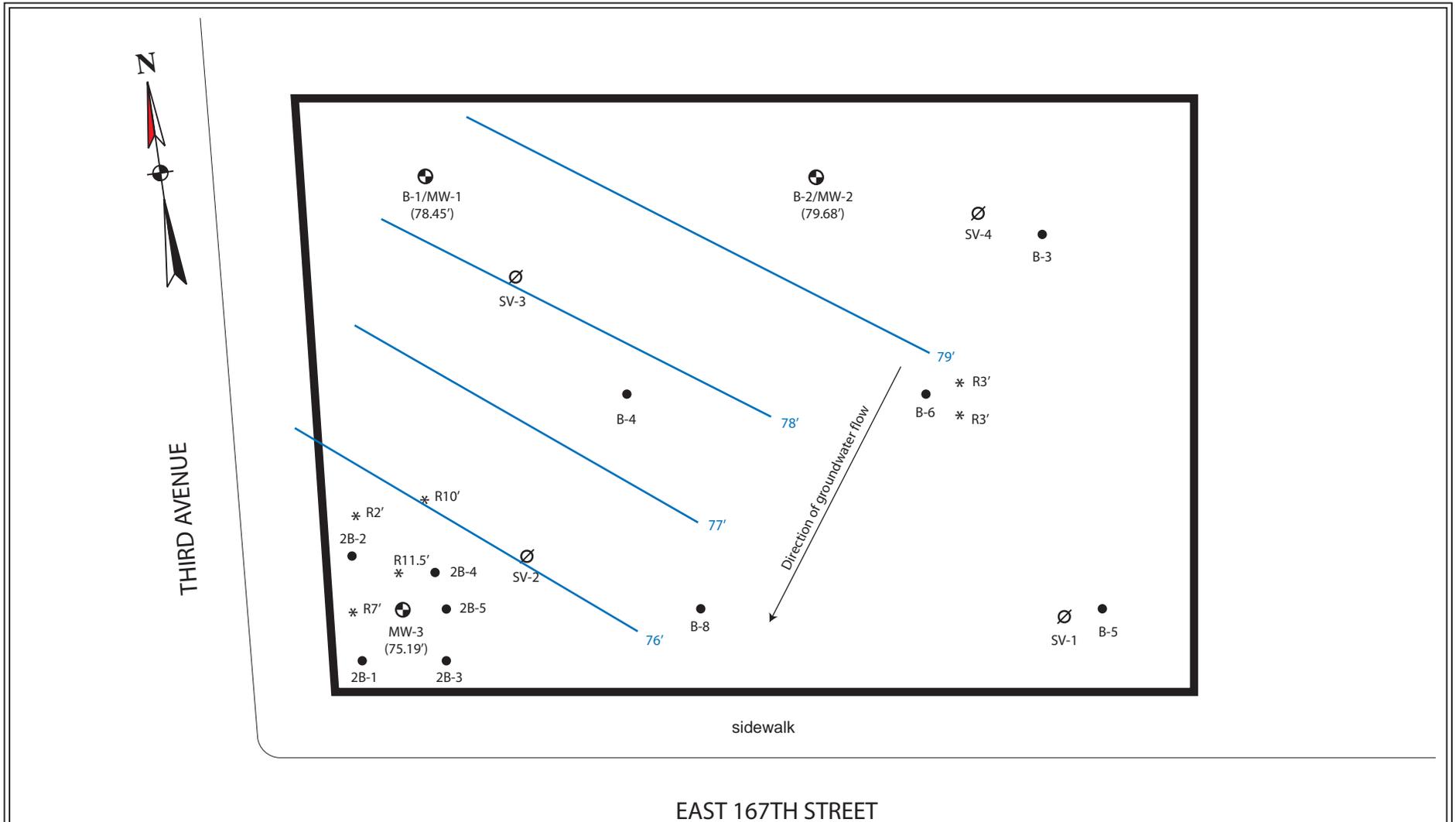
3458 Third Avenue  
Bronx, New York

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Figures





All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

### Figure 5: Fieldwork Map

3458 Third Avenue  
Borough of Bronx, New York

**Legend:**

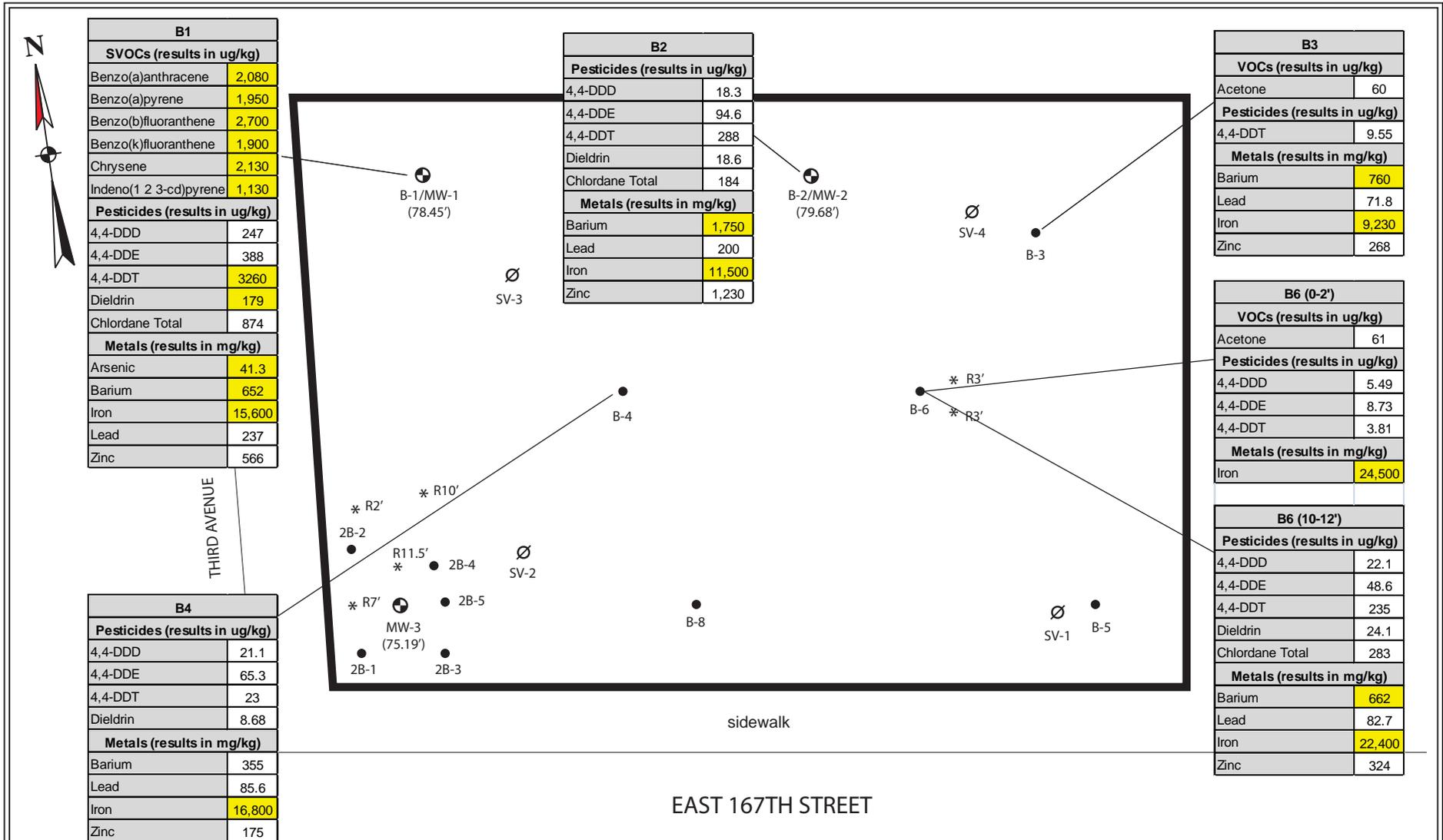
- subject property border
- boring location completed as monitoring well
- boring location \* refusal location  soil gas location
- groundwater contour

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1" = 20' approximately

Figures



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

**Figure 6: Exceedances of Track 2 and Track 4 SCOs in Soil Map**  
3458 Third Avenue  
Borough of Bronx, New York

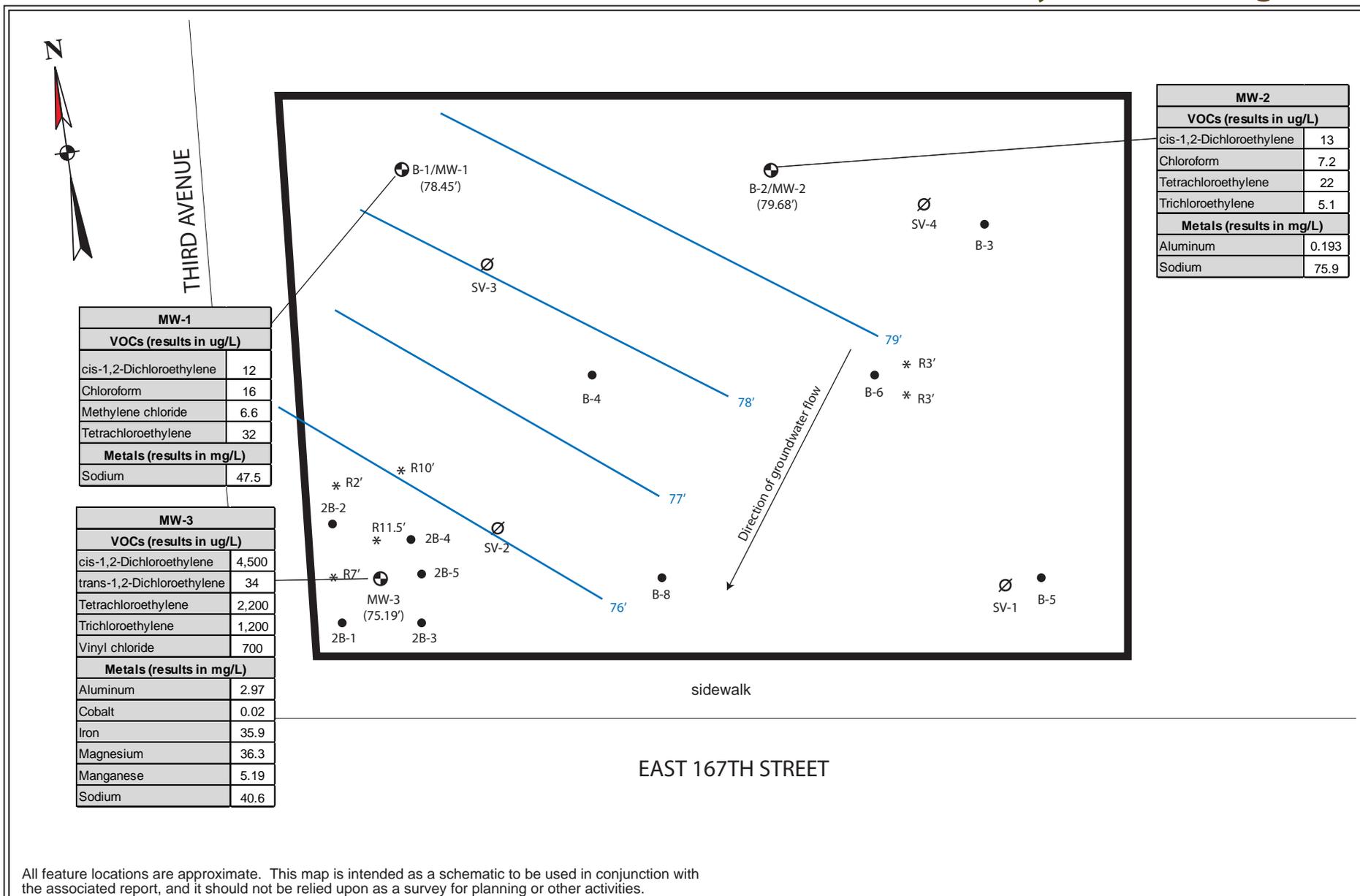
- Legend:  subject property border
- ⊕ boring location completed as monitoring well
- boring location \* refusal location ∅ soil gas location
- exceedances of Restricted Use Residential SCOs

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Scale: 1" = 20' approximately

Figures



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

**Figure 7: Exceedances in Groundwater Map**  
 3458 Third Avenue  
 Borough of Bronx, New York

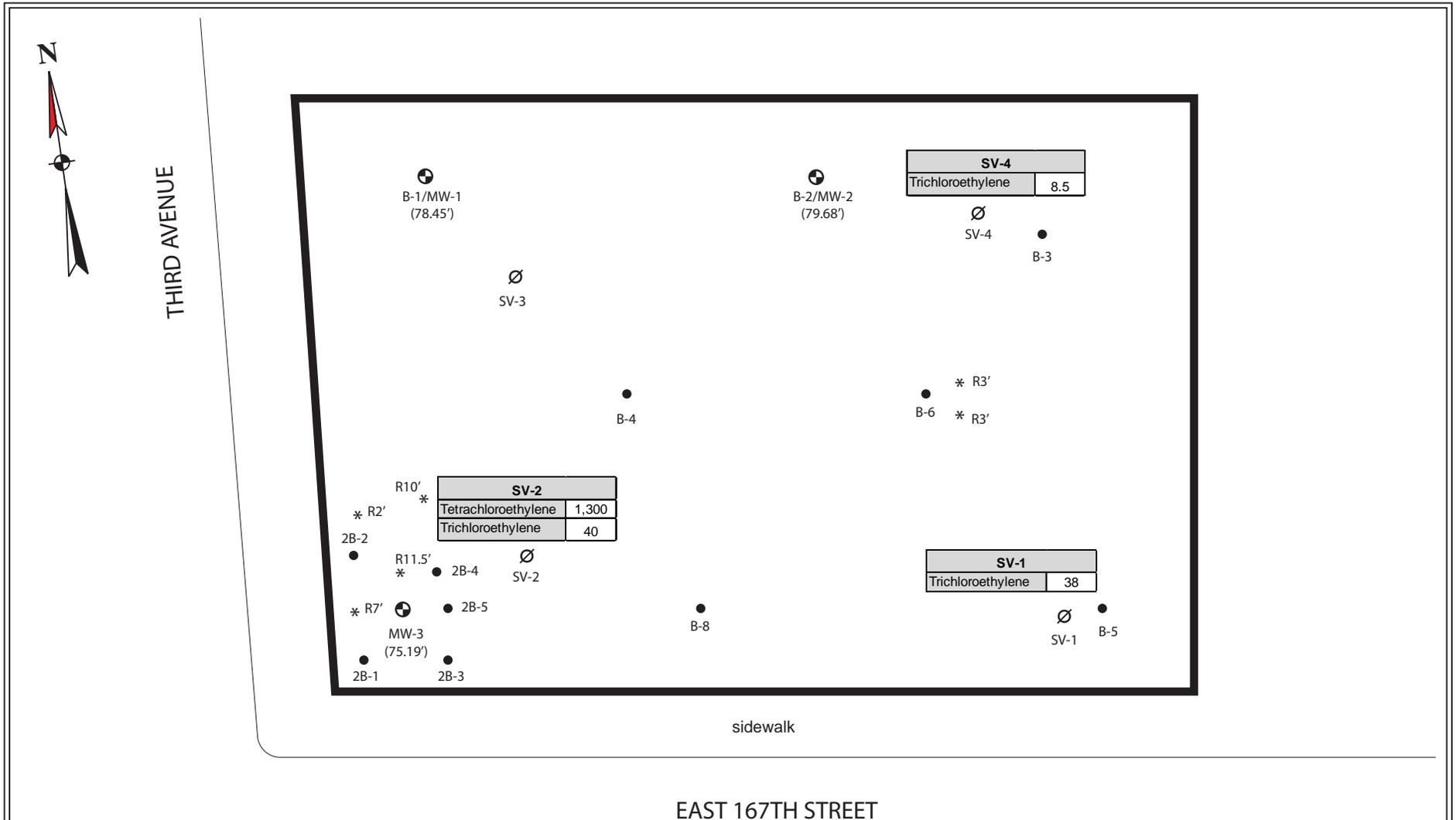
- Legend:
-  subject property border
  -  boring location completed as monitoring well
  -  boring location \* refusal location
  -  soil gas location
  -  groundwater contour

ESI File: KB07097.20

August 2013

1" = 20' approximately

Figures



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

**Figure 8: Exceedances in Soil Vapor Map**

3458 Third Avenue  
Borough of Bronx, New York

Legend:

- subject property border
- boring location completed as monitoring well
- boring location \* refusal location soil vapor location (results in ug/mg<sup>3</sup>)

ESI File: KB07097.20

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1" = 20' approximately

Figures



**Tables**

Table 1A: VOCs in Soil

VOCs (USEPA Method 8260)	Table 375-6.8(b): Restricted Use SCO - Residential (ppb)	Sample Identification										
		B1 10'-12' (4/10/13)	B2 0'-2' (4/10/13)	B3 10'-12' (4/10/13)	B4 0'-2' (4/10/13)	B6 0'-2' (4/10/13)	B6 10'-12' (4/10/13)	2B-1 8' (6/24/13)	2B-1 16' (6/24/13)	2B-3 10' (6/24/13)	2B-4 16' (6/24/13)	2B-5 10' (6/24/13)
1,1,1,2-Tetrachloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro - 1,2,2-trifluoroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	19,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	80,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	47,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	2,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	47,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	17,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	9,800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	NE	6.4 J	ND	13 J	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	100,000	46 B	46 B	60 B	7.0 J,B	61 B	8.9 J,B	ND	ND	ND	ND	ND
Benzene	2,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	NE	ND	12 B	ND	ND	6.6 J,B	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	1,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	10,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloropropene	59,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	30,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	100,000	5.3 J,B	62 B	ND	6.6 J,B	34 B	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl-ether (MTBE)	62,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	NE	6.8 J,B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (o,m,p)	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5,500	ND	ND	13	ND	ND	21	ND	ND	5.7 J	ND	ND
Toluene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloropropene	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	10,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	210	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Guidance levels based on BCP Restricted Use, "Residential" SCOs, 6 NYCRR Part 375, Table 375-6.8(b).

J = Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B = Analyte is found in the associated analysis batch blank.

ND = Not Detected ; NE = No value listed

Blue shade indicates detectable concentrations.

ESI File: KB07097.20

**Table 1B: SVOCs in Soil**

SVOCs (USEPA Method 8270)	Table 375-6.8(b): Restricted Use SCO - Residential (ppb)	Sample Identification					
		B1 10'-12' (4/10/13)	B2 0'-2' (4/10/13)	B3 10'-12' (4/10/13)	B4 0'-2' (4/10/13)	B6 0'-2' (4/10/13)	B6 10'-12' (4/10/13)
1,2,4-Trichlorobenzene	NE	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	100,000	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	NE	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	100,000	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	NE	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	100,000	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	NE	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1,030	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	NE	ND	ND	ND	ND	ND	ND
2-Chlorophenol	100,000	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	410	ND	ND	ND	ND	ND	ND
2-Methylphenol	NE	ND	ND	ND	ND	ND	ND
2-Nitroaniline	NE	ND	ND	ND	ND	ND	ND
2-Nitrophenol	NE	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	NE	ND	ND	ND	ND	ND	ND
3-Methylphenol	NE	ND	ND	ND	ND	ND	ND
3-Nitroaniline	NE	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	NE	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	NE	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	NE	ND	ND	ND	ND	ND	ND
4-Chloroaniline	NE	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	NE	ND	ND	ND	ND	ND	ND
4-Methylphenol	NE	ND	ND	ND	ND	ND	ND
4-Nitroaniline	NE	ND	ND	ND	ND	ND	ND
4-Nitrophenol	NE	ND	ND	ND	ND	ND	ND
Acenaphthene	100,000	ND	ND	ND	ND	ND	ND
Acenaphthylene	100,000	844 J	ND	ND	ND	ND	ND
Aniline	48,000	ND	ND	ND	ND	ND	ND
Anthracene	100,000	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	1,000	2,080	ND	ND	ND	ND	ND
Benzo(a)pyrene	1,000	1,950	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1,000	2,700	ND	ND	ND	ND	ND
Benzo(ghi)perylene	100,000	1,240 J	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	1,000	1,900	ND	ND	ND	ND	ND
Benzyl alcohol	1,000	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	NE	ND	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	NE	ND	ND	ND	ND	ND	ND
Bis(2-chloroisopropyl)ether	NE	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	50,000	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	NE	ND	ND	ND	ND	ND	ND
Chrysene	1,000	2,130	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	330	ND	ND	ND	ND	ND	ND
Dibenzofuran	NE	ND	ND	ND	ND	ND	ND
Diethyl phthalate	100,000	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	100,000	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	100,000	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	100,000	ND	ND	ND	ND	ND	ND
Fluoranthene	100,000	5,890	ND	ND	ND	ND	ND
Fluorene	100,000	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	410	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	NE	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	NE	ND	ND	ND	ND	ND	ND
Hexachloroethane	NE	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	500	1,130 J	ND	ND	ND	ND	ND
Isophorone	100,000	ND	ND	ND	ND	ND	ND
m-Cresol	100,000	ND	ND	ND	ND	ND	ND
Naphthalene	100,000	ND	ND	ND	ND	ND	ND
Nitrobenzene	3,700	ND	ND	ND	ND	ND	ND
n-Nitroso-di-n-propylamine	NE	ND	ND	ND	ND	ND	ND
n-Nitrosodiphenylamine	NE	ND	ND	ND	ND	ND	ND
o-Cresol	100,000	ND	ND	ND	ND	ND	ND
p-Cresol	34,000	ND	ND	ND	ND	ND	ND
Pentachlorophenol	2,400	ND	ND	ND	ND	ND	ND
Phenanthrene	100,000	4,860	ND	ND	ND	ND	ND
Phenol	100,000	ND	ND	ND	ND	ND	ND
Pyrene	100,000	3,850	ND	ND	ND	ND	ND
Pyridine	NE	ND	ND	ND	ND	ND	ND

Notes:

Guidance levels based on BCP Restricted Use, "Residential" SCOs, 6 NYCRR Part 375, Table 375-6.8(b).

J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The Concentration given is an approximate value.

ND = Not Detected ; NE = No value listed

Blue shade indicates detectable concentrations.

Bold and yellow shade indicates exceedance of applicable regulatory criteria.

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**Table 1C: PCBs and Pesticides in Soil**

PCBs (USEPA Method 8082)	Table 375-6.8(b): Restricted Use SCO - Residential (ppb)	Sample Identification					
		B1 10'-12' (4/10/13)	B2 0'-2' (4/10/13)	B3 10'-12' (4/10/13)	B4 0'-2' (4/10/13)	B6 0'-2' (4/10/13)	B6 10'-12' (4/10/13)
Aroclor 1016	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1221	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1232	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1242	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1248	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1254	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1260	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1262	1,000	ND	ND	ND	ND	ND	ND
Aroclor 1268	1,000	ND	ND	ND	ND	ND	ND
<b>Aroclor, Total</b>	<b>1,000</b>	ND	ND	ND	ND	ND	ND
<b>Pesticides (USEPA Method 8081)</b>							
4,4-DDD	2,600	247	18.3	ND	21.1	5.49	22.1
4,4-DDE	1,800	388	94.6	ND	65.3	8.73	48.6
4,4-DDT	1,700	<b>3,260</b>	288	9.55	23	3.81	235
Aldrin	19	ND	ND	ND	ND	ND	ND
alpha-BHC	97	ND	ND	ND	ND	ND	ND
beta-BHC	72	ND	ND	ND	ND	ND	ND
delta-BHC	100,000	ND	ND	ND	ND	ND	ND
Dibenzofuran	14,000	ND	ND	ND	ND	ND	ND
Dieldrin	39	<b>179</b>	18.6	3.36	8.68	ND	24.1
Endosulfan I	4,800	ND	ND	ND	ND	ND	ND
Endosulfan II	4,800	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	4,800	ND	ND	ND	ND	ND	ND
Endrin	2,200	ND	ND	ND	ND	ND	ND
Endrin aldehyde	NE	ND	ND	ND	ND	ND	ND
Endrin ketone	NE	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	280	ND	ND	ND	ND	ND	ND
Heptachlor	420	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	77	ND	ND	ND	ND	ND	ND
Methoxychlor	100,000	ND	ND	ND	ND	ND	ND
Toxaphene	NE	ND	ND	ND	ND	ND	ND
<b>Chlordane Total</b>	<b>910</b>	874	184	23.4	81.1	10.9	283

Notes:

Guidance levels based on BCP Restricted Use, "Residential" SCOs, 6 NYCRR Part 375, Table 375-6.8(b).

ND = Not Detected ; NE = No value listed

Blue shade indicates detectable concentrations.

Bold and yellow shade indicates exceedance of applicable regulatory criteria.

ESI File: KB07097.20

**Table 1D: Metals in Soil**

TAL Metals	Table 375-6.8(b): Restricted Use SCO - Residential (ppm)	Sample Identificaiton					
		B1 10'-12' (4/10/13)	B2 0'-2' (4/10/13)	B3 10'-12' (4/10/13)	B4 0'-2' (4/10/13)	B6 0'-2' (4/10/13)	B6 10'-12' (4/10/13)
Aluminum	NE	9,850	8,930	7,320	10,100	14,300	14,200
Antimony	NE	1.2	1.36	ND	0.925	0.717	0.627
Arsenic	16	<b>41.3</b>	8.14	5.63	2.8	2.02	4.16
Barium	350	<b>652</b>	<b>1,750</b>	<b>760</b>	<b>355</b>	171	<b>662</b>
Beryllium	14	ND	ND	ND	ND	ND	ND
Cadmium	2.5	ND	1.21	ND	ND	ND	ND
Calcium	NE	104,000	139,000	90,100	58,000	27,200	75,300
Chromium	36	13	13.6	10.7	18.3	26.8	24.8
Cobalt	30	5.26	5.07	4.64	9.53	16.3	14.3
Copper	270	14.2	12	20.5	33.9	31.5	28.7
Iron	2,000	<b>15,600</b>	<b>11,500</b>	<b>9,230</b>	<b>16,800</b>	<b>24,500</b>	<b>22,400</b>
Lead	400	237	200	71.8	85.6	30.8	82.7
Magnesium	NE	39,500	55,400	24,900	12,600	8,500	34,300
Manganese	2,000	308	356	217	251	290	394
Mercury	0.31	ND	ND	ND	ND	ND	ND
Nickel	140	7.77	8.78	9.6	15.5	23.9	18.4
Potassium	NE	11.3	1,340	1,810	3,180	7,810	6,860
Selenium	36.0	ND	0.976	0.94	1.04	1.83	ND
Silver	36	ND	ND	ND	ND	ND	ND
Sodium	NE	1,060	609	452	463	284	562
Thallium	NE	ND	ND	ND	ND	ND	ND
Vanadium	100	25.5	20.6	19.4	32.4	38.9	36.2
Zinc	2,200	566	1,230	268	175	96.1	324

Notes:

Guidance levels based on BCP Restricted Use, "Residential" SCOs, 6 NYCRR Part 375, Table 375-6.8(b).

ND = Not Detected ; NE = No value listed

Blue shade indicates detectable concentrations.

Bold and yellow shade indicates exceedance of applicable regulatory criteria.

ESI File: KB07097.20

Table 2A: VOCs in Groundwater

VOCs (USEPA Method 8260)	Regulatory Criteria/ Guidance Level µg/L (parts per billion)	Sample Identification		
		MW-1 (4/16/13)	MW-2 (4/16/13)	MW-3 (4/16/13)
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
1,1,1-Trichloroethane	5	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	5	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
1,1-Dichloroethylene	5	ND	ND	4.4 J
1,1-Dichloropropylene	5	ND	ND	ND
1,2,3-Trichlorobenzene	5	ND	ND	ND
1,2,3-Trichloropropane	0.04	ND	ND	ND
1,2,3-Trimethylbenzene	5	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND
1,2,4-Trimethylbenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ND	ND	ND
1,2-Dibromoethane	5	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND
cis-1,2-Dichloroethylene	5	12	13	4,500
trans-1,2-Dichloroethylene	5	ND	ND	34
1,2-Dichloroethylene (total)	5	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND
1,3,5-Trimethylbenzene	5	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	1.0 J
1-Chlorohexane	5	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
2-Butanone	NE	14	1.7 J	
2-Chlorotoluene	5	ND	ND	1.5 J
4-Chlorotoluene	5	ND	ND	1.5 J
Acetone	NE	6.2 J	ND	ND
Benzene	1	ND	ND	ND
Bromobenzene	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
Bromoform	50	ND	ND	ND
Bromomethane	5	ND	ND	ND
Carbon tetrachloride	5	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Chloroform	7	16	7.2	ND
Chloromethane	5	ND	ND	ND
Cis-1,3-Dichloropropylene	0.4	ND	ND	ND
Dibromochloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND
Methylene chloride	5	6.6 J,B	4.1 J,B	3.9 J,B
Methyl tert-butyl ether (MTBE)	10	ND	ND	ND
Naphthalene	10	ND	ND	ND
n-Butylbenzene	5	ND	ND	ND
n-Propylbenzene	5	ND	ND	ND
Xylenes (o,m,p)	5	ND	ND	ND
p-Isopropyltoluene	5	ND	ND	ND
sec-Butylbenzene	5	ND	ND	ND
Styrene	5	ND	ND	ND
tert-Butylbenzene	5	ND	ND	ND
Tetrachloroethylene	5	32	22	2,200
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropylene	0.4	ND	ND	ND
Trichloroethylene	5	3.3 J	5.1	1,200
Trichlorofluoromethane	5	ND	ND	ND
Vinyl chloride	2	ND	1.0 J	700

Notes:

Regulatory Criteria/Guidance levels based on Title 6 NYCRR Part 703 Water Quality Standards or NYSDEC Division of Water TOGS 1.1.1 (June 1998) and subsequent NYSDEC Memoranda, as appropriate  
 J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value;  
 B = Analyte is found in the associated analysis batch blank.

ND = Not Detected ; NE = No value listed

Blue shade indicates detectable concentrations.

Bold and yellow shade indicates exceedance of applicable regulatory criteria.

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**Table 2B: SVOCs in Groundwater**

SVOCs (USEPA Method 8270)	Regulatory Criteria/ Guidance Level µg/L (parts per billion)	Sample Identification		
		MW-1 (4/16/13)	MW-2 (4/16/13)	MW-3 (4/16/13)
1,2,4-Trichlorobenzene	5	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND
2,4,5-Trichlorophenol	NE	ND	ND	ND
2,4,6-Trichlorophenol	NE	ND	ND	ND
2,4-Dichlorophenol	5	ND	ND	ND
2,4-Dimethylphenol	50	ND	ND	ND
2,4-Dinitrophenol	10	ND	ND	ND
2,4-Dinitrotoluene	5	ND	ND	ND
2,6-Dinitrotoluene	5	ND	ND	ND
2-Chloronaphthalene	10	ND	ND	ND
2-Chlorophenol	NE	ND	ND	ND
2-Methylnaphthalene	NE	ND	ND	ND
2-Methylphenol	NE	ND	ND	ND
2-Nitroaniline	5	ND	ND	ND
2-Nitrophenol	NE	ND	ND	ND
3,3-Dichlorobenzidine	5	ND	ND	ND
3-Nitroaniline	5	ND	ND	ND
4,6-Dinitro-2-methylphenol	NE	ND	ND	ND
4-Bromophenyl phenyl ether	NE	ND	ND	ND
4-Chloro-3-methylphenol	NE	ND	ND	ND
4-Chloroaniline	5	ND	ND	ND
4-Chlorophenyl phenyl ether	NE	ND	ND	ND
4-Methylphenol	NE	ND	ND	ND
4-Nitroaniline	5	ND	ND	ND
4-Nitrophenol	5	ND	ND	ND
Acenaphthene	20	ND	ND	ND
Acenaphthylene	NE	ND	ND	ND
Aniline	5	ND	ND	ND
Anthracene	50	ND	ND	ND
Benzo(a)anthracene	0.002	ND	ND	ND
Benzo(a)pyrene	NE	ND	ND	ND
Benzo(b)fluoranthene	0.002	ND	ND	ND
Benzo(ghi)perylene	NE	ND	ND	ND
Benzo(k)fluoranthene	0.002	ND	ND	ND
Benzyl alcohol	NE	ND	ND	ND
Bis(2-chloroethoxy)methane	5	ND	ND	ND
Bis(2-chloroethyl)ether	1	ND	ND	ND
Bis(2-chloroisopropyl)ether	NE	ND	ND	ND
Bis(2-ethylhexyl)phthalate	5	ND	ND	ND
Chrysene	0.002	ND	ND	ND
Dibenzo(a h)anthracene	NE	ND	ND	ND
Dibenzofuran	NE	ND	ND	ND
Diethyl phthalate	50	ND	ND	ND
Dimethyl phthalate	50	ND	ND	ND
Di-n-butyl phthalate	50	ND	ND	ND
Di-n-octyl phthalate	50	ND	ND	ND
Fluoranthene	50	ND	ND	ND
Fluorene	50	ND	ND	ND
Hexachlorobenzene	0.04	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND
Hexachlorocyclopentadiene	5	ND	ND	ND
Hexachloroethane	5	ND	ND	ND
Indeno(1 2 3-cd)pyrene	0.002	ND	ND	ND
Isophorone	50	ND	ND	ND
Naphthalene	10	ND	ND	ND
Nitrobenzene	0.4	ND	ND	ND
n-Nitroso-di-n-propylamine	NE	ND	ND	ND
n-Nitrosodiphenylamine	50	ND	ND	ND
n-Nitrosodimethylamine	50	ND	ND	ND
Pentachlorophenol	1	ND	ND	ND
Phenanthrene	50	ND	ND	ND
Phenol	1	ND	ND	ND
Pyrene	50	ND	ND	ND
Pyridine	50	ND	ND	ND

**Notes:**

Regulatory Criteria/Guidance levels based on Title 6 NYCRR Part 703 Water Quality Standards or NYSDEC Division of Water TOGS 1.1.1 (June 1998) and subsequent NYSDEC Memoranda, as appropriate.

ND = Not Detected ; NE = No value listed

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**Table 2C: Pesticides and PCBs in Groundwater**

Pesticides (USEPA Method 8081)	Regulatory Criteria/ Guidance Level µg/L (parts per billion)	Sample Identification		
		MW-1 (4/16/13)	MW-2 (4/16/13)	MW-3 (4/16/13)
4,4'-DDD	0.30	ND	ND	ND
4,4'-DDE	0.20	ND	ND	ND
4,4'-DDT	0.20	ND	ND	ND
Aldrin	NE	ND	ND	ND
alpha-BHC	0.01	ND	ND	ND
beta-BHC	0.04	ND	ND	ND
Chlordane	0.05	ND	ND	ND
delta-BHC	0.04	ND	ND	ND
Dieldrin	0.004	ND	ND	ND
Endosulfan I	NE	ND	ND	ND
Endosulfan II	NE	ND	ND	ND
Endosulfan sulfate	NE	ND	ND	ND
Endrin	NE	ND	ND	ND
Endrin aldehyde	5	ND	ND	ND
gamma-BHC (Lindane)	0.05	ND	ND	ND
Heptachlor	0.04	ND	ND	ND
Heptachlor Epoxide	0.03	ND	ND	ND
Toxaphene	0.06	ND	ND	ND
<b>PCBs (USEPA Method 8082)</b>				
Aroclor 1016	100	ND	ND	ND
Aroclor 1221	100	ND	ND	ND
Aroclor 1232	100	ND	ND	ND
Aroclor 1242	100	ND	ND	ND
Aroclor 1248	100	ND	ND	ND
Aroclor 1254	100	ND	ND	ND
Aroclor 1260	100	ND	ND	ND
Aroclor 1262	100	ND	ND	ND
Aroclor 1268	100	ND	ND	ND
Aroclor, Total	100	ND	ND	ND

Notes:

Regulatory Criteria/Guidance levels based on Title 6 NYCRR Part 703 Water Quality Standards or NYSDEC Division of Water TOGS 1.1.1 (June 1998) and subsequent NYSDEC Memoranda, as appropriate

ND = Not Detected ; NE = No value listed

ESI File: KB07097.20

Table 2D: Metals in Groundwater

TAL METAL	Regulatory Criteria/ Guidance Level mg/L (parts per million)	Sample Identification		
		MW-1 (4/16/13)	MW-2 (4/16/13)	MW-3 (4/16/13)
Aluminum	0.1	0.042	<b>0.193</b>	<b>2.97</b>
Antimony	0.003	ND	ND	ND
Arsenic	0.025	ND	ND	ND
Barium	1	0.061	0.081	0.06
Beryllium	0.003	ND	ND	ND
Cadmium	0.005	ND	ND	ND
Calcium	NE	88.9	130	80.1
Chromium	0.05	ND	ND	ND
Cobalt	0.005	ND	ND	<b>0.02</b>
Copper	2	ND	ND	0.011
Iron	3*	ND	0.241	<b>35.9</b>
Lead	0.025	ND	ND	0.011
Magnesium	35	8.69	23.7	<b>36.3</b>
Manganese	3*	0.131	0.579	<b>5.19</b>
Mercury	0.0007	ND	ND	ND
Nickel	1	ND	ND	0.014
Potassium	NE	8.31	20	6.21
Selenium	0.01	ND	ND	ND
Silver	0.05	ND	ND	ND
Sodium	20	<b>47.5</b>	<b>75.9</b>	<b>40.6</b>
Thallium	0.0005	ND	ND	ND
Vanadium	0.014	ND	ND	ND
Zinc	2	ND	ND	0.099

Notes:

Regulatory Criteria/Guidance levels based on Title 6 NYCRR Part 703 Water Quality Standards or NYSDEC Division of Water TOGS 1.1.1 (June 1998) and subsequent NYSDEC Memoranda, as appropriate.

Blue shade indicates detectable concentrations.

Bold and yellow shade indicates exceedance of applicable regulatory criteria.

ND = Not Detected; NE = No value listed; \* = Guidance level for total iron and manganese is 500

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**Table 3: Summary of Detected VOCs in Soil Vapor Samples**

Results provided in ug/m<sup>3</sup>

Compound	Guideline Values	Sample Identification			
		SV-1 (4/9/13)	SV-2 (4/9/13)	SV-3 (4/9/13)	SV-4 (4/9/13)
1,1,1-Trichloroethane	NE	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NE	ND	ND	ND	ND
1,1,2-Trichloroethane	NE	ND	ND	ND	ND
1,1-Dichloroethane	NE	ND	ND	ND	ND
1,1-Dichloroethylene	NE	ND	ND	ND	ND
1,2,4-Trichlorobenzene	NE	ND	ND	ND	ND
1,2,4-Trimethylbenzene	NE	2.7	ND	3.5	2.6
1,2-Dibromoethane	NE	ND	ND	ND	ND
1,2-Dichlorobenzene	NE	ND	ND	ND	ND
1,2-Dichloroethane	NE	ND	ND	ND	ND
1,2-Dichloropropane	NE	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NE	ND	ND	ND	ND
1,3,5-Trimethylbenzene	NE	ND	ND	ND	ND
1,3-Butadiene	NE	ND	ND	110	ND
1,3-Dichlorobenzene	NE	ND	ND	ND	ND
1,4-Dichlorobenzene	NE	ND	ND	ND	ND
1,4-Dioxane	NE	ND	ND	ND	ND
2,2,4-Trimethylpentane	NE	ND	ND	ND	ND
2-Butanone	NE	100	ND	110	17
2-Hexanone	NE	2.5	ND	ND	ND
3-Chloropropene	NE	ND	ND	ND	ND
4-Methyl-2-pentanone	NE	ND	ND	8.1	ND
Acetone	NE	130 E	ND	100	59
Benzene	NE	7.8	ND	13	0.77
Benzyl Chloride	NE	ND	ND	12	ND
Bromodichloromethane	NE	ND	ND	ND	ND
Bromoform	NE	ND	ND	ND	ND
Bromomethane	NE	ND	ND	ND	ND
Carbon Disulfide	NE	13	ND	18	9.4
Carbon Tetrachloride	NE	ND	ND	ND	ND
Chlorobenzene	NE	ND	ND	ND	ND
Chloroethane	NE	ND	ND	ND	ND
Chloroform	NE	88	ND	20	48
Chloromethane	NE	ND	ND	ND	ND
cis-1,2-Dichloroethylene	NE	ND	ND	ND	ND
cis-1,3-Dichloropropylene	NE	13	ND	ND	ND
Cyclohexane	NE	3	ND	9.8	ND
Dichlorodifluoromethane	NE	ND	ND	ND	ND
Ethyl acetate	NE	ND	ND	ND	ND
Ethylbenzene	NE	1.6	ND	1.5	ND
Freon-113	NE	ND	ND	ND	ND
Isopropanol	NE	4.5	ND	4.8	3.9
Methylene Chloride	60	3.4	ND	14	17
MTBE	NE	ND	ND	ND	ND
n-Heptane	NE	11	ND	19	2.3
n-Hexane	NE	21	ND	52	15
o-Xylene	NE	2	ND	2.1	1
p- & m-Xylenes	NE	4.5	ND	4	2.2
p-Ethyltoluene	NE	ND	ND	ND	ND
Propylene	NE	ND	ND	ND	ND
Styrene	NE	ND	ND	ND	ND
Tetrachloroethylene	100	86	1,300	3.2	160
Tetrahydrofuran	NE	27	ND	ND	ND
Toluene	NE	17	ND	9.4	2.8
trans-1,2-Dichloroethylene	NE	ND	ND	ND	ND
trans-1,3-Dichloropropylene	NE	ND	ND	ND	ND
Trichloroethylene	5	38	40	ND	8.5
Trichlorofluoromethane	NE	3.6	ND	22	38
Vinyl acetate	NE	ND	ND	ND	ND
Vinyl Bromide	NE	ND	ND	ND	ND
Vinyl Chloride	NE	ND	ND	ND	ND

Notes

Guideline values based on the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

E= The concentration is an estimated value above the calibration range of the instrument. The value is considered an estimate.

Blue shade indicates detectable concentrations

Bold and yellow shade indicates exceedance of applicable regulatory criteria

ND = Non detect

NE = Not established

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Table 4: Field Observations - Page 1 of 3

Coring ID	Location <sup>1</sup>	Depth of Core (feet)	Soil Characteristics	Groundwater Encountered	PID Reading	Field Observations
B-1	Northeast corner of property. 7' south of northern property line and 20' east of western property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach. Coarse yellowish brown sand with pebbles. Coarse medium brown sand with brick fragments. Grayish brown medium sand with brick and concrete fragments. Wood chip at 8'. Coarse medium brown sand.	No	0.0	No visual or olfactory evidence of contamination.
B-2	Central northern portion of property. 7' south of northern property line and 50' west of eastern property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach. Coarse medium brown sand with brick fragments throughout.	No	0.0	No visual or olfactory evidence of contamination.
B-3	Northeast portion of property. 8' west of eastern property line and 15' south of northern property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach. Coarse medium brown sand with brick fragments throughout.	No	0.0	No visual or olfactory evidence of contamination.
B-4	Central western portion of property. 24' east of western property line and 33' north of southern property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach. Coarse medium brown sand with brick fragments throughout.	No	0.0	No visual or olfactory evidence of contamination.
B-5	Southeast portion of property. 20' west of eastern property line and 14' north of southern property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach. Coarse, moist greenish sand. Fill comprised of brick fragments, and dark gray sand. Fill with brick fragments and coarse gray/brown sand. Decayed and weathered bed rock.	No	0.0	No visual or olfactory evidence of contamination.



Table 4: Field Observations - Page 2 of 3

Coring ID	Location <sup>1</sup>	Depth of Core (feet)	Soil Characteristics	Groundwater Encountered	PID Reading	Field Observations
B-6	Central eastern portion of property. 35' west of eastern property line and 40' north of southern property line.	0-2	Asphalt breach. Coarse sand with brick fragments.	No	0.0	No visual or olfactory evidence of contamination.
		2-4	Coarse medium brown sand.			
		4-6	Coarse medium brown sand with brick fragments.			
		6-8 8-10 10-12	Silty sand with brick fragments. 20% recovery.			
B-8	Central southern portion of property. 35' west of eastern property line and 9' north of southern property line.	0-2	Asphalt breach. Coarse yellowish brown sand with pebbles.	No	0.0	No visual or olfactory evidence of contamination.
		2-4				
		4-6	Black sand to 4.5', then coarse yellowish brown sand.			
		6-8				
		8-10	Fill comprised of brick fragments and coarse brown sand.			
10-12	Coarse sand and brick fragments.					
2B-1	Southeast portion of property. 6' east of the western property line and 6' north of southern property line.	0-20'	Fill comprised of brick fragments and coarse brown sand throughout.	14'	0.0	No visual or olfactory evidence of contamination.
2B-2	Southeast portion of property. 6' east of the western property line and 20' north of southern property line.	0-20'	Fill comprised of brick fragments and coarse brown sand throughout.	15'	0.0	No visual or olfactory evidence of contamination.
2B-3	Southeast portion of property. 19' east of the western property line and 6' north of southern property line.	0-20'	Fill comprised of brick fragments and coarse brown sand throughout.	15'	0.0	No visual or olfactory evidence of contamination.
2B-4	Southeast portion of property. 18' east of the western property line and 17' north of southern property line.	0-20'	Fill comprised of brick fragments and coarse brown sand throughout.	15'	0.0	No visual or olfactory evidence of contamination.



Table 4: Field Observations - Page 3 of 3

Coring ID	Location <sup>1</sup>	Depth of Core (feet)	Soil Characteristics	Groundwater Encountered	PID Reading	Field Observations
2B-5	Southeast portion of property. 19' east of the western property line and 13' north of southern property line.	0-20'	Fill comprised of brick fragments and coarse brown sand throughout.	15'	0.0	No visual or olfactory evidence of contamination.
MW-1	Northeast corner of property. 7' south of northern property line and 20' east of western property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach.	13.92'	0.0	No visual or olfactory evidence of contamination.
MW-2	Central northern portion of property. 7' south of northern property line and 50' west of eastern property line.	0-2 2-4 4-6 6-8 8-10 10-12	Asphalt breach.	15.89'	0.0	No visual or olfactory evidence of contamination.
MW-3	Southwest corner of property. 10' north of southern property line and 10' east of western property line.	N/A	Well already existed on property prior to ESI fieldwork.	17.10'	0.0	N/A
SV-1	North west corner of the property. 14' south of the northern property line and 16' east of the western property line.	8'	Asphalt breach. Probe extended to 8'. No soil sample collected.	No	0.0	No visual or olfactory evidence of contamination.
SV-2	Central northern portion of property. 16' south of the northern property line and 46' east of the western property line.	8'	Asphalt breach. Probe extended to 8'. No soil sample collected	No	0.0	No visual or olfactory evidence of contamination.
SV-3	Southeast portion of property. 19' west of the eastern property line and 13' north of southern property line.	8'	Asphalt breach. Probe extended to 8'. No soil sample collected	No	0.0	No visual or olfactory evidence of contamination.
SV-4	Southwest corner of property. 27' east of western property line and 18' north of southern property line.	8'	Asphalt breach. Probe extended to 8'. No soil sample collected	No	0.0	No visual or olfactory evidence of contamination.