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April 8, 2014

Via Email <yywong@gw.dec.state.ny.us>

Mr. Bryan Wong
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 2
Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Subject: **1299 1st Avenue, New York, NY**
NYSDEC BCP No. C231072
Addendum to the Remedial Investigation Work Plan

Dear Mr. Wong,

Integral Engineering P.C. (Integral) has prepared this Addendum to the Remedial Investigation Work Plan (RIWP), dated November 2013, on behalf of 3SK Corporation (3SK) (Participant), for the property located at 1299 1st Avenue (Block 1444, Lot 30), New York, NY (Site). The Site is currently enrolled in the New York State Brownfield Cleanup Program (BCP) and listed as Site No. C231072.

INTRODUCTION

This Addendum to the RIWP has been prepared to evaluate the potential for offsite migration of chlorinated solvent impacts found in soil vapor and groundwater during the performance of the onsite Remedial Investigation (RI). The RI was approved by the New York State Department of Environmental Conservation (NYSDEC) in November 2013 and a portion of the approved scope of work was implemented in December 2013.

Prior to conducting the full RI, Integral developed an estimation of anticipated remedial costs for the client. In order for Integral to accurately assess remedial costs associated with

the nature and extent of previously identified contamination onsite and the potential for this contamination to migrate offsite, Integral implemented portions of the approved RIWP associated with investigating soil vapor and groundwater north and east of the Site and bedrock east of the Site (Initial RI).

The results of the Initial RI indicate that chlorinated solvents are present at elevated concentrations in groundwater and soil vapor north and east of the Site. In an effort to evaluate potential exposure of impacted soil vapor to receptors located north of the Site, Integral approached NYSDEC on March 12, 2014 with a plan of action that included supplementing the existing RIWP with soil vapor sampling across 70th Street, north of the Site.

This modification to the RIWP includes the additional soil vapor sampling, as discussed with NYSDEC, and also the following activities previously approved under the original RIWP scope, but not yet implemented at the Site: investigation of soil vapor south of the Site, performance of an onsite sub-slab soil vapor pilot test, and a survey of all monitoring/bedrock wells that have been installed on or offsite. Deferments to the RIWP are discussed on page 8 of this Addendum.

This Addendum to the RIWP includes a summary of the Site history, a description of the Site geologic and hydrogeologic setting, a summary of the initial RI results specific to groundwater and soil vapor¹, a supplemental task for the evaluation of soil vapor beneath the northern sidewalk on 70th Street, across the street and north of the Site, and portions of the approved RIWP to be implemented and deferred during this phase of the investigation.

SITE DESCRIPTION

The Site is located in a commercial and residential area of the Upper East Side section of the Borough of Manhattan. The Site is comprised of an approximately 1,957 square foot rectangular parcel located on the corner of the block and is bounded to the north by 70th Street; to the east by 1st Avenue; to the south by 69th Street; and to the west by 2nd Avenue. Adjacent properties include mixed use commercial and residential buildings to the south, west and east; and a senior center to the north. The Site is identified on New York City tax maps as Block 1444, Lot 30. A Site location map is provided as Figure 1. A map showing the Site property boundaries is included as Figure 2.

¹ A complete summary of the initial RI sampling results (including soil) will be included in the RI Report, expected to be submitted to the Department after the implementation of the entire RI scope of work.

The Site is currently developed with a 4-story commercial/residential building (measuring approximately 25' x 65'). The first floor of the building is utilized as a convenience store and pharmacy. The basement depth is approximately six (6) feet (ft) below sidewalk grade (bsg) and is divided into two sections, both of which are used for storage. Two (2) 275-gallon above ground storage tanks (ASTs) containing number two fuel oil are located in the western section of the basement. Residential units occupy floors two through four, with two units per floor. Within the footprint of the Site is a separate one-story building (measuring approximately 12' x 25') located west of the main Site building. This building is presently utilized as a drycleaning drop-off and pick up facility and shares a wall with the main building. There is a small (10'x20') space located beneath the one story building that contains a boiler. Integral understands that this boiler services both onsite buildings.

SITE HISTORY

According to the Record Review Report prepared by Hydro Tech Environmental (Hydro Tech), historic Sanborn Maps indicated that a drycleaner was present on-site between 1976 and 1996. City Directory search records list a drycleaner (NU Brite Cleaners) in operation at the Site between 1950 and 1988 and identified it as a Resource Conservation Recovery Act (RCRA) Non-Generator of hazardous wastes between 1999 and 2007.

Additionally, Hydro Tech reported that between 2000 and 2005, the rear portion of the commercial space was leased to Global Entrepreneurship Inc., which provided drycleaning services with off-site dry cleaning operations. It is unclear if the "rear portion" of the commercial space refers to the small one-story building located west of the main building or to another section of the main commercial space. The Site was utilized as an auto body repair shop from 1927 to 1942.

Previous onsite investigations performed by Integral and others have demonstrated chlorinated solvent impacts to soil vapor and groundwater exist beneath the Site, as well as north and east of the Site.

PHYSICAL SETTING

The Site incorporates approximately .45 acres of fairly level land situated in the City of New York, New York County, New York. The Site is mapped on the *Central Park, NY-NJ and Brooklyn* Quadrant 7.5 Minute Topographic Map, published by the United States Geological Survey (USGS). Review of the topographic map indicates that the Site is located approximately 50 feet above sea level (NGVD 1988).

Previous reports have characterized the sediment beneath the Site as poorly graded brown sand with some pebbles.

Bedrock geology in the vicinity of the Site is characterized as the Hartland Formation (Middle Ordovician to Lower Cambrian). The Hartland formation consists of interbedded units of fine- grained quartz-feldspar, fine- to coarse-grained quartzofeldspathic, muscovite-biotite-garnet schist, and quartz-biotite-hornblend amphibolite. Much of the schist is magnetic and is in thrust-fault contact with the underlying Manhattan Schist on the Cameron's Line thrust, which goes beneath the Triassic and Triassic Newark basin sediments. Depth to bedrock is expected to be 10 to 17 feet below street grade (Baskerville, 1994).

Groundwater has been measured at depths ranging from approximately 15 to 20 ft-bsg. Regional groundwater flow is expected to be east-northeast towards the East River; local groundwater follow is assumed to be the same. The topography of the Site is relatively flat. No formal elevation survey has been conducted to provide exact groundwater elevations; a formal elevation survey will be performed during this phase of RI implementation.

SUMMARY OF SOIL VAPOR AND GROUNDWATER SAMPLE RESULTS

Remedial Investigation – Integral, December 2013

Integral conducted a Remedial Investigation in December 2013 that included the implementation of a portion of the approved RI scope of work. This initial phase of investigation included the collection of soil, soil gas, bedrock, and groundwater samples for the evaluation of onsite contaminant concentrations, evaluation of potential offsite migration of previously identified chlorinated solvent contamination, and assessment of potential remedial actions.

All samples were collected in accordance with the approved Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP).

Evaluation of the RI soil vapor and groundwater results demonstrates that further investigation would be necessary in the northern sidewalk across 70th Street. The discussion presented below pertains only to the groundwater and soil vapor results and establishes Tetrachloroethene (PCE) and Trichloroethene (TCE) as Site-specific constituents of concern (COCs) for soil vapor and PCE, TCE, cis-1,2-Dichloroethene (DCE), and Vinyl Chloride (VC) as COCs for groundwater. A comprehensive discussion of the results of the RI will be included in the Remedial Investigation Report (RIR) to be submitted to the Department subsequent to the implementation of the entire RI scope of work, at which point a holistic evaluation will be made with regard to conclusions, recommendations and possible remedial actions.

Groundwater

Three existing overburden monitoring wells (MW-4, MW-5A, and MW-7) and two newly installed overburden wells (MW-8 and MW-9) were sampled as part of the RI. Groundwater sample analysis was compared against NYSDEC Division of Water Technical Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values (AWQS).

Results of the laboratory analysis of groundwater indicate exceedences for PCE in all wells sampled excluding MW-5A, which is located in the northeast corner of 1st Avenue and 70th Street. The highest concentration of PCE (3,500 µg/l) was detected in MW-8, exceeding its AWQS of 5 µg/l. MW-8 was installed as part of the RI in the basement of the onsite building. PCE breakdown products, TCE, DCE, and VC were detected at concentrations exceeding their respective AWQS in three of the five wells sampled (MW-4, MW-7, and MW-8). Monitoring well MW-8, contained the highest concentrations of TCE and DCE (590 µg/l and 3,000 µg/l respectively) exceeding the AWQS for both compounds (5 µg/l). MW-4, located in the southern sidewalk along 70th Street, contained the highest concentration of VC (340 µg/l) exceeding its AWQS of 2 µg/l. DNAPL was not observed in any well during sampling activities.

Figure 3 depicts chlorinated solvent concentrations detected in groundwater.

Soil Vapor

The RI scope of work for the collection of soil vapor samples specifically focused on evaluating the potential for offsite migration of previously identified contaminants. Two permanent soil vapor points were installed and two soil vapor samples were collected as part of the RI: SV-6 located in the southern sidewalk along 70th Street (adjacent to the site building) and SV-7 located in the eastern sidewalk along 1st Avenue.

Soil vapor sampling results were compared to New York State Department of Health (NYSDOH) Air Guideline Values (AGVs) found in the Guidance for Evaluating Soil Vapor Intrusion in New York State (NYSDOH 2006). While AGVs are guidance values for indoor air concentrations, they are applied here solely as a screening tool for soil vapor.

Results of the soil vapor analysis indicated elevated concentrations of PCE and TCE in both soil vapor samples collected. Laboratory analysis of sample SV-6 indicated concentrations of PCE and TCE three to four orders of magnitude greater than their respective indoor air guidance values. Laboratory analysis of sample SV-7 indicated concentrations of PCE and TCE one order of magnitude greater than their respective indoor air guidance values. Soil vapor sample locations and results are depicted on Figure 4.

RI ADDENDUM SCOPE OF WORK

All Site work will be conducted in accordance with the Site specific QAPP and HASP (included as part of the approved RIWP).

Previously Approved Scope Items

The following scope of work to be performed during this continued phase of RI implementation is included in the approved RIWP.

Soil Vapor Communication Pilot Test – Completed March 31, 2014

In order to determine the general appropriateness of sub-slab depressurization for the mitigation of on-site soil vapor intrusion and inform the subsequent mitigation system design, a series of sub-slab air communication tests will be performed at the Site.

The test procedure will include drilling small diameter test holes into the concrete and creating a cavity in the sub-slab material at likely suction point locations and likely useful vacuum monitoring points. Enough holes will be drilled to gain a working understanding of the sub-slab characteristics for all areas of the building. Once the holes are drilled, a known vacuum will be applied to potential suction points and differential pressure measurements are recorded at neighboring test points to evaluate sub-slab communications. All test holes will be repaired with polyurethane caulk applied over a closed cell backer rod.

Permanent Soil Vapor Point Installation and Soil Vapor Sampling

Permanent soil vapor point SV-8, located in the sidewalk south of the Site, will be installed to the depth of the Site basement (approximately 6.5 ft-below sidewalk grade) using a hand held hammer drill. Soil vapor results from SV-8 will aid in assessing the potential for offsite migration of soil vapor south of the Site.

Permanent soil vapor points will be constructed of a 6" stainless steel soil vapor implant with a double woven stainless steel wire .15mm pore screen size. The soil vapor implant will be attached to dedicated 1/8" Teflon tubing to grade. The annular space around the implant will be filled with No. 00 Morie quartz sand to a depth of 2' above the top of the screen, followed by a bentonite/grout mixture to approximately 6" below grade to prevent ambient air from entering the area around the probe. The points will be finished with 6" of bentonite pellets placed below a locking flush-mounted road box, set in a cement apron.

The bentonite seal will be left to set overnight. Once the seal is secure, a "T" fitting and valve will be connected on the above-surface end of the tubing. A syringe will be used to purge the vapors in the probe and tubing of three volumes. As required by the NYSDOH, a helium (He) tracer will be used as part of the sampling process and all testing will follow the NYSDOH Soil Vapor Guidance. Prior to sample collection, the He vapor will be screened using a field meter and the measurement recorded at each soil vapor sampling location. Prior to sample collection, a multi-gas meter will be used to measure the concentration of O₂, CO₂, and CH₄ in each probe, to assess the subsurface chemistry (e.g. redox state). Following this procedure, the soil vapor samples will be collected in clean, batch certified, two (2) liter Summa™ canisters at flow rates no greater than 200 ml/min.

Soil vapor samples will be collected over a period of two (2) hours. Soil vapor samples will be analyzed for Site-specific COCs for soil vapor, PCE and TCE, via USEPA Method TO-15 at a NYSDOH ELAP-certified analytical laboratory.

Well Survey

A survey of all existing and newly installed monitoring and bedrock wells will be performed in order to accurately evaluate groundwater elevation and assess flow direction.

Supplemental RI Scope Items

The following scope of work was verbally approved by the Department during our March 12, 2014 meeting. This scope of work is supplemental to the existing approved RI scope of work and will be performed during this phase of continued RI implementation.

Offsite Installation of Permanent Soil Vapor Points and Soil Vapor Sampling

In order to evaluate the potential for impacted soil vapor to migrate offsite to the north, two permanent soil vapor points (SV-9 and SV-10) will be installed along the northern sidewalk of 70th Street. Soil vapor points will be installed to the depth of the Site basement (approximately 6.5 ft-below sidewalk grade) using a hand held hammer drill. Methodology for installation and sampling of SV-9 and SV-10 will be identical to the installation and sampling methodology detailed above for previously approved soil vapor point (SV-8).

One (1) duplicate sample will be collected for QA/QC. QA/QC procedures to be followed are described in the QAPP (included in the approved RIWP). An independent sub-consultant will validate sample results and a Data Usability Summary Report (DUSR) will be prepared.

Proposed offsite soil vapor sample locations are provided on Figure 5.

Deferred RI Scope Items

In order to address potential offsite migration of impacted soil vapor and evaluate possible onsite soil vapor mitigation strategies, the following previously approved RI scope items continue to be deferred:

- Installation of monitoring well MW-10 and bedrock well MW-10BR;
- Sampling of monitoring wells MW-1, MW-2, and MW-6A; and
- Installation and sampling of soil borings SP-13, SP-14, SP-15, SP-19, SP-20, SP-21, and SP-24.

Deferred scope items are visible on Figure 5.

REPORTING

The results of this phase of continuing RI implementation will be included in the Remedial Investigation Report (RIR) for the Site. The RIR will describe the investigation, will document Site conditions, and will meet the requirements of DER-10. The report will include details of the sampling, tabulated sample results and an assessment of the data and conclusions. If warranted, recommendations for additional actions will be included.

All data will be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EQuIS format.

SCHEDULE

The scope of work described in this Addendum to the RIWP has commenced with NYSDEC's verbal approval of this Work Plan on March 12, 2012. On Monday, March 31, the soil vapor communication test was performed at the Site. Installation of the permanent soil vapor points is scheduled to take place on Thursday April 10, with soil vapor sampling scheduled for Monday March 14, after equilibrium has returned to the subsurface. The well survey is in the process of being bid out to subcontractors.

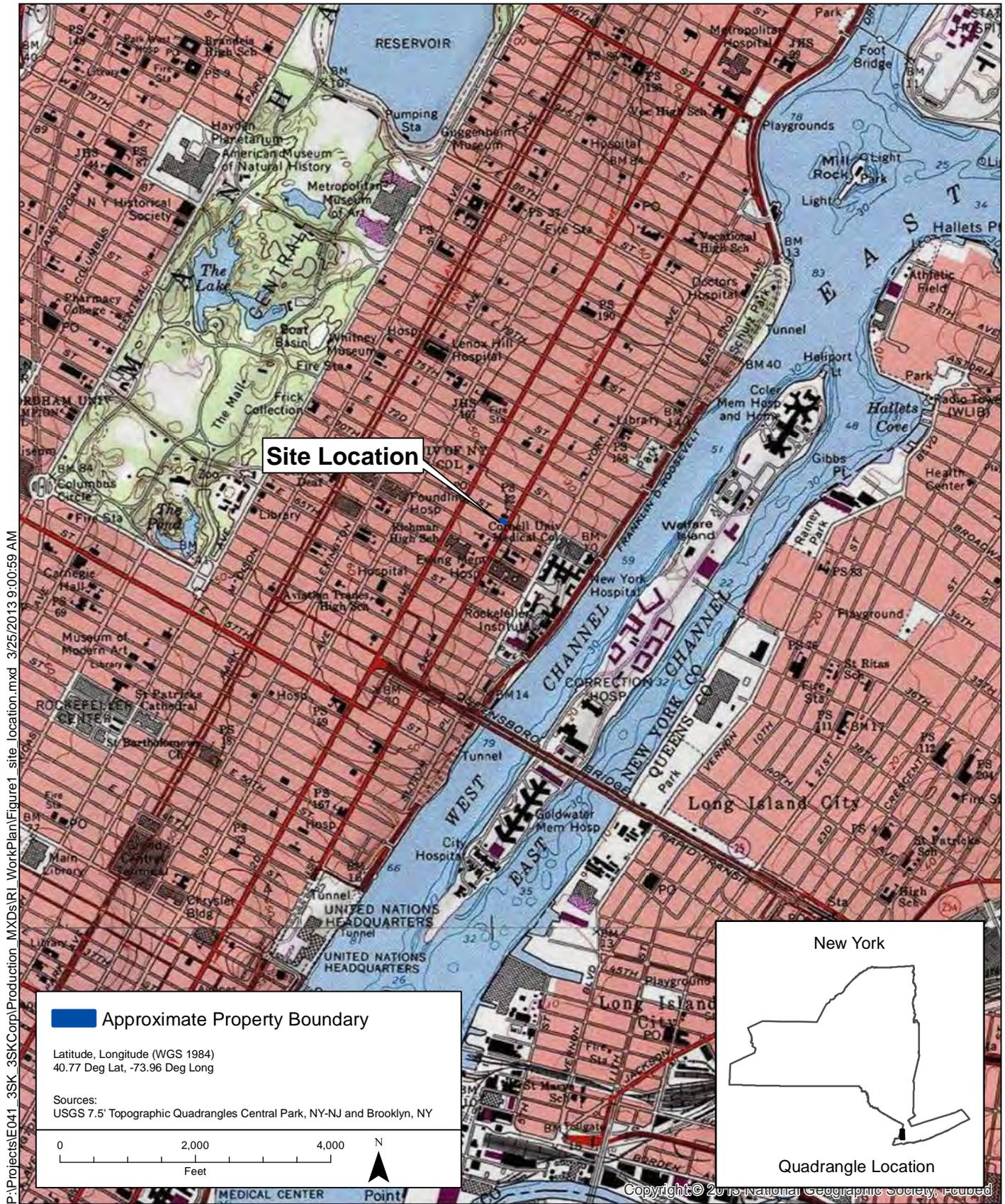
If the Department should have any comments or questions on this Addendum, please direct their attention to Ms. Alana M. Carroll.

Mr. Bryan Wong NYSDEC
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Sincerely,

A handwritten signature in black ink, appearing to read "Alana M. Carroll". The signature is fluid and cursive, with the first name being the most prominent.

Alana M. Carroll
Senior Geologist/Project Manger



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Figure 1.
Site Location Map
1299 1st Avenue
New York, New York

E 70th Street



Sidewalk



1-Story
Dry Cleaner
(Lot 30)

4-Story Commercial/
Residential Building
LOT 30

5-Story
Residential
Building
LOT 130

Rear Yard
(Lot 29)

4-Story Commercial/
Residential Building
LOT 29

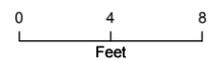
Sidewalk

1st Avenue

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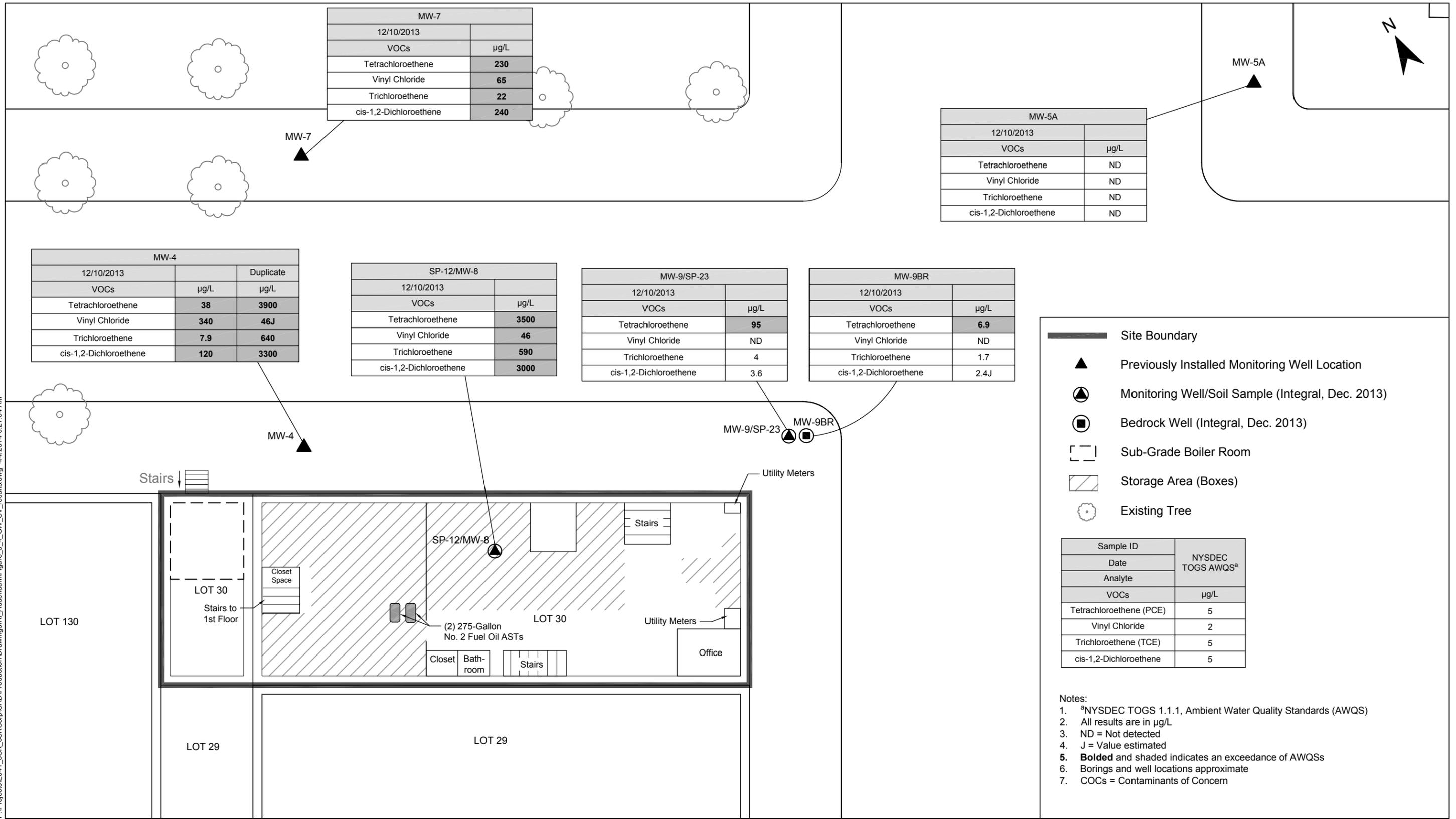
Site Boundary

Notes:
1. Building locations approximate.

Sources:
1. Figure 1 Site Plan, Hydro Tech Environmental Corp., 9/11/08.

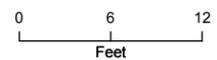
Figure 2.
Site Plan
1299 1st Avenue
New York, New York

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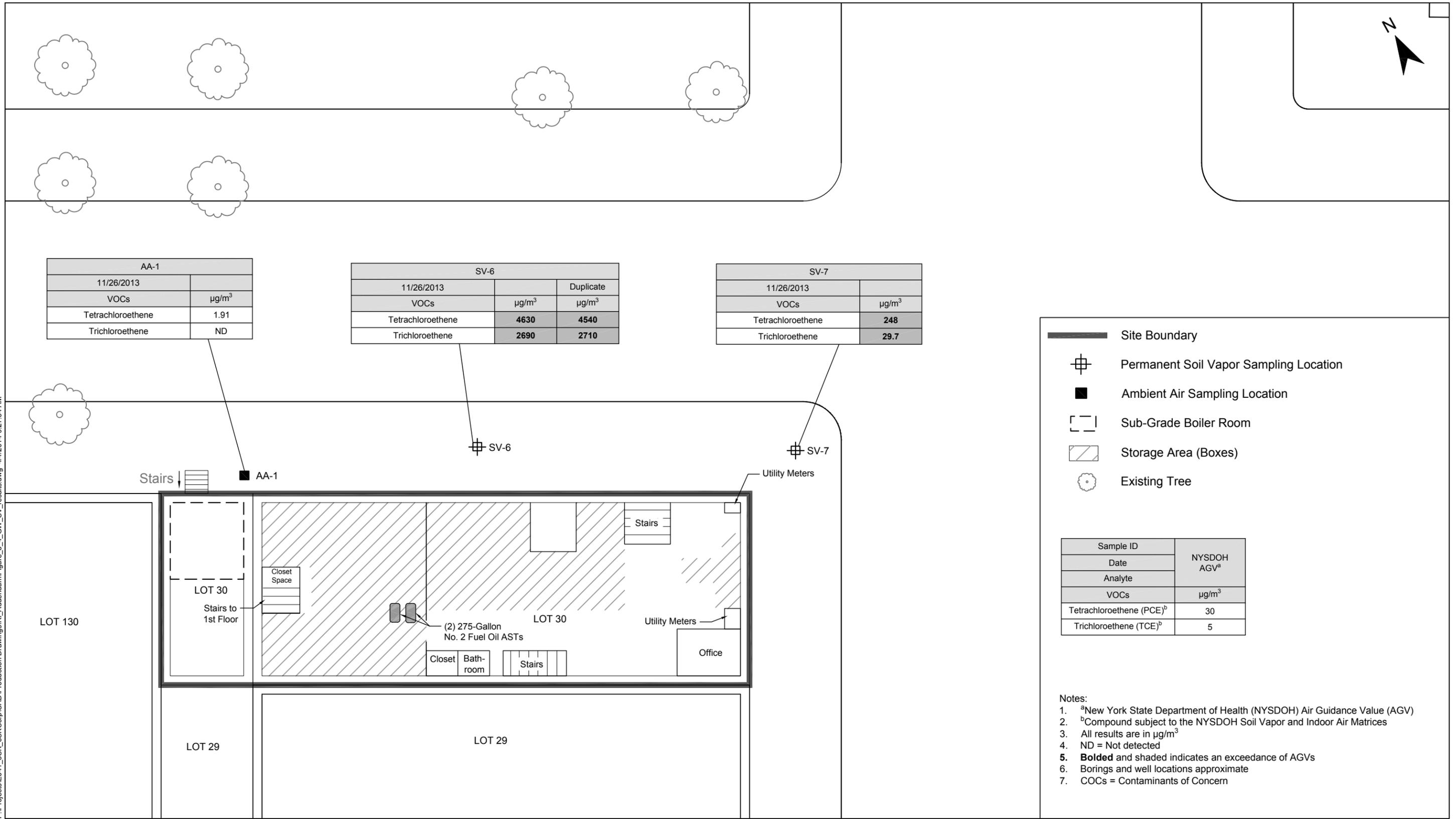


- Sources:
- Figure 4: Soil Contamination Diagram, Focused Subsurface Investigation Report, Hydro Tech Environmental Corp., 2008
 - Figure 1: Site Plan and Monitoring Well Locations, Groundwater Investigation Report, Hydro Tech Environmental Corp., May 5, 2010
 - Figure 1 Site Plan, Hydro Tech Environmental Corp., 9/11/08.

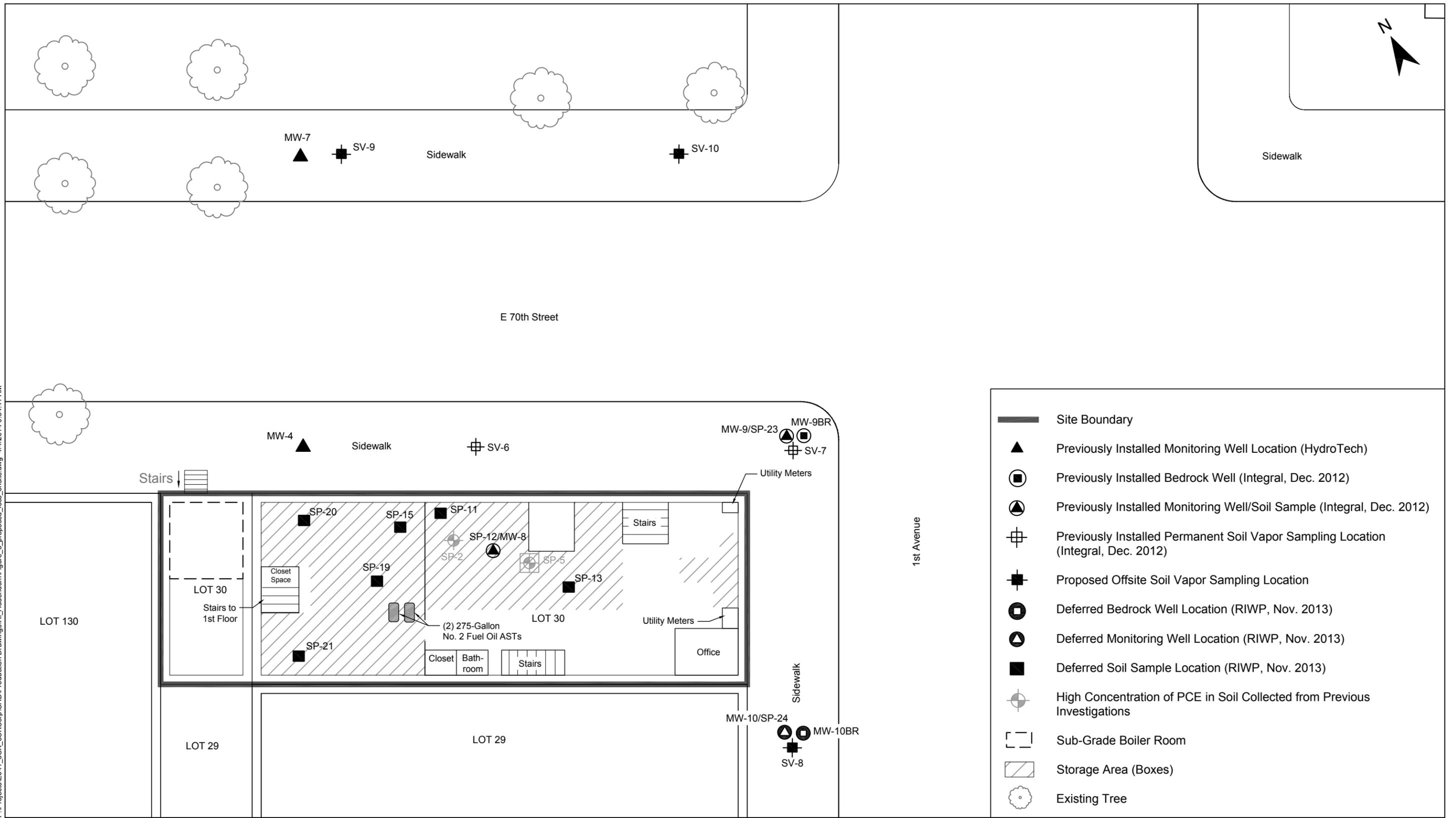
Figure 3.
Groundwater Sample Results Map - Site Specific COCs
Initial Remedial Investigation
1299 1st Avenue
New York, New York



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Notes:

1. Borings and well locations approximate.

Sources:

1. Figure 4: Soil Contamination Diagram, Focused Subsurface Investigation Report, Hydro Tech Environmental Corp., 2008
2. Figure 1: Site Plan and Monitoring Well Locations, Groundwater Investigation Report, Hydro Tech Environmental Corp., May 5, 2010
3. Figure 1 Site Plan, Hydro Tech Environmental Corp., 9/11/08.

Figure 5.
Proposed Offsite Soil Vapor Locations
Addendum to the RIWP
1299 1st Avenue
New York, New York