PSG

REMEDIAL INVESTIGATION WORK PLAN

125 Beechwood, LLC

125 Beechwood Avenue

New Rochelle, Westchester County, New York 10801

NYSDEC BCP Site Number: C360232

PSG Project Number: 21396176

January 31, 2023

Prepared for:

125 Beechwood, LLC

C/O AMERCO Real Estate Company

2727 North Central Avenue

Phoenix, Arizona 85004

Engineers who understand your business

January 31, 2023

Emily Barry
New York State Department of Environmental Conservation
Division of Environmental Remediation
21 South Putt Corners Road
New Paltz, New York 12561

Subject: Remedial Investigation Work Plan
125 Beechwood Avenue
New Rochelle, New York 10801
PSG Project Number: 21396176
NYSDEC BCP Site Number: C360232

Dear Mr. Bennett:

PSG Engineering and Geology, D.P.C. (PSG) is pleased to provide this Remedial Investigation Work Plan (RIWP) for the property located at 125 Beechwood Avenue in the City of New Rochelle, Westchester County, New York.

PSG Engineering and Geology, D.P.C.

Anthony Cauterucci, CHMM
Project Manager

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Senior Project Manager

TABLE OF CONTENTS

ATTACHMENTS

Tables
Table 1: Soil Sampling Results (2021)
Table 2: Groundwater Sampling Results (2021-2022)
Table 3: Soil Vapor and Indoor Air Sampling Results (2021-2022)

Figures
Figure 1: Site Location Map
Figure 2: Topographic Map
Figure 3: Historic Sample Location Map
Figure 4: Monitoring Well Location Map
Figure 5A: Groundwater Contour Map – November 2021
Figure 5B: Groundwater Contour Map – February 2022
Figure 6: Groundwater Concentrations Map (VOCs)
Figure 7: Groundwater Concentrations Map (SVOCs)
Figure 8: Soil Vapor/Indoor Air Concentrations Map
Figure 9: Proposed Sample Location Plan

Appendices
Appendix A: Quality Assurance Project Plan (QAPP)
Appendix B: Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP)
Appendix C: Project Team Resumes

LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
ESA	Environmental Site Assessment
ELAP	Environmental Laboratory Accreditation Program
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYC DOT	New York City Department of Transportation
NYC OER	New York City Office of Environmental Remediation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
RA	Register Architect
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

1.1 Purpose

This Remedial Investigation Work Plan (RIWP) has been prepared by PSG Engineering and Geology, D.P.C. (PSG) on behalf of 125 Beechwood, LLC (the "Applicant" and property owner) for the site located at 125 Beechwood Avenue in New Rochelle, Westchester County, New York (the Site) in accordance with the New York State Department of Environmental Conservation (NYSDEC) DER-10 / Technical Guidance for Site Investigation and Remediation and all applicable regulations to further delineate the nature and extent of contamination identified during previous subsurface investigations completed at the Site. The current owner of the Site, 125 Beechwood, LLC, has been accepted into the Brownfield Cleanup Program (BCP) per the signed Brownfield Cleanup Agreement (BCA) dated XXXXX under index number XXXXX.

The RIWP describes the procedures to be used to define the nature and extent of contamination in on-site soil, groundwater, soil vapor, and indoor air. The data compiled from this Remedial Investigation (RI) and the previous subsurface investigations will be used to prepare a Remedial Action Work Plan (RAWP). The proposed RI will be completed in accordance with this RIWP, which includes a Quality Assurance Project Plan (QAPP) (**Appendix A**) and a Health and Safety Plan (HASP) (**Appendix B**). The Community Air Monitoring Plan (CAMP) detailed in the HASP will be implemented during all subsurface disturbance activities at the Site, including but not limited to soil boring advancement, soil sampling, monitoring well installation and development, groundwater and soil vapor sampling, and backfilling of boreholes.

The Site location and property boundary are shown in **Figure 1**.

1.2 Site Location and Current Usage

The Site consists of one 3.17-acre property identified as Section 2, Block 691, Lot 005 and is developed with a large two-story commercial building occupied by U-Haul Moving & Storage and an asphalt-paved parking lot along the southwestern corner. Current operations at the Site consist of typical commercial office, self-storage, and parking operations, and associated property maintenance. The Site is bounded by railroad tracks to the north; Beechwood Avenue followed by residential buildings and commercial automotive repair services to the south; Second Street followed by commercial offices and automotive repair services to the east; and one commercial building occupied by Atlas Welding & Boiler Repair Inc. to the west.

The Site is currently zoned "LI" for light industrial and commercial use. No daycares, hospitals, or schools were identified within a 500-foot radius of the Site.

1.3 Site Redevelopment

The proposed redevelopment at the Site includes continued interior renovations to the existing Site building, with no subsurface disturbance currently proposed.

1.4 Geology and Hydrogeology

Based on a review of the United States Geological Survey (USGS) Mount Vernon, New York, 2019 Quadrangle topographic map, the Site is situated at an elevation between approximately 50 to 75 feet

above mean sea level, and the local topography is sloping slightly to the southeast. Refer to **Figure 2** for a topographic map of the Site's vicinity.

The Site is situated within the Appalachian Plateau physiographic province of the State of New York. The uppermost geologic formation underlying the soils at the Site is the Ordovician Age Hartland formation. The Hartland formation comprises the underlying stratigraphy and consists mostly of basal amphibolite overlain by pelitic schist. The thickness of the Hartland formation is estimated to be up to 4,000 feet. The Hartland formation covers the areas of the east Bronx and Queens, separated by Cameron's line, a tectonic fault that separates the Manhattan prong, with the Ravenswood formation in Queens, Kings, and lower Manhattan.

2.0 PREVIOUS INVESTIGATIONS

2.1 Phase I Environmental Site Assessment, AKRF Inc. (April 27, 2012)

AKRF, Inc. (AKRF) prepared this report on behalf of Zarin and Steinmetz. The assessment was performed in accordance with ASTM Standard E1527-05. The assessment consisted of a site reconnaissance, interviews with knowledgeable personnel, review of historical information, a review of federal, state and local regulatory databases and included a limited visual asbestos survey and a limited lead-based paint survey. The assessment also included 160 Beechwood Avenue, a parking lot located adjacent to and south of the Site across Beechwood Avenue. Pertinent information contained in this report is summarized below:

- At the time of the 2012 assessment, the Site was developed with a one- to two-story warehouse occupied by Sadek Import Co. for commercial office and warehouse use and asphalt-paved parking and drive areas.
- According to the AKRF report, the Site was developed with the existing one- to two-story warehouse in 1951, with a northern wing added in 1955. Tenants at the Site included Gries Reproducer Corp. (aka Gries Dynacast) from 1951 through 1985, which utilized the Site for metal fabrication, die-casting, and plating operations.

AKRF identified 17 recognized environmental conditions (RECs); however, upon review, PSG determined that several of these RECs did not warrant further investigation. The following relevant RECs were identified:

- The Site was historically utilized for metal fabrication, die-casting, and plating operations from 1951 through 1985. The former metal plating and die-casting process took place in the southern portion of the building at 125 Beechwood Avenue. An approximately 8,000-square foot area of wood block flooring with intermittent petroleum-like staining was observed in the southern and southeastern portion of the distribution warehouse. Wood-block flooring was reportedly used to absorb vibrations caused by the equipment.
- One 10,000-gallon fuel oil underground storage tank (UST) was closed-in-place beneath the northeastern portion of the building at 125 Beechwood Avenue. The fuel oil UST was located beneath an access door in the floor. Concrete was visible in the tank and fill line. An UST site assessment report dated August 1995 documented that visual observation of the UST during abandonment revealed no evidence of a release, and laboratory results associated with soil samples collected from three soil borings drilled along Second Street, and approximately 50 feet to the east of the UST, at a presumed downgradient location, indicated that residual detections were not indicative of an adverse impact to soil quality. Petroleum staining was observed in the boiler room in the northeast portion of the basement at 125 Beechwood Avenue near former UST supply lines associated the closed-in-place fuel oil UST.
- According to the New Rochelle Building Department, the Site at 125 Beechwood Avenue was formerly equipped with two gasoline USTs and a gas pump. The USTs were reportedly installed in 1979 and 1980 and removed in 1985 from the northeastern portion of the Site in the loading dock area.

- Petroleum staining and one out-of-use aboveground storage tank (AST) were identified in the gas meter room in the northeast portion of the building at 125 Beechwood Avenue. A recirculation vat (Vat-2) formerly used by the metal plating and die casting tenant, an AST (capacity and contents unknown) and sump were located in the gas meter room. The sump reportedly discharged to the municipal sewer system. The AST in the gas meter room contained pressure gauges and product transfer pipes. The pipes were cut off and abandoned. The use of the tank was unable to be determined.
- Petroleum staining was identified on concrete adjacent to an air compressor blow-down vent at 125 Beechwood Avenue. Cracking was noted in the concrete.
- The building at 125 Beechwood Avenue operated a hydraulic freight elevator. The pit was observed to be filled with groundwater during a 2009 inspection. A second inspection was reported in 2012 with evidence of flooding, line failure, or hydraulic oil releases.
- Two Consolidated Edison (Con Ed) owned pad-mounted transformers were located adjacent to the southwestern exterior of the Site building at 125 Beechwood Avenue. The Con Ed transformers reportedly contained polychlorinated biphenyls (PCBs) between 23.34 and 30.82 parts per million (ppm).
- The Site at 125 Beechwood Avenue was identified on the New York (NY) Spill, Petroleum Bulk Storage (PBS), and Resource Conversation and Recovery Act (RCRA) Small Quantity Generator databases.

2.2 *Phase II Subsurface Investigation Report*, PSG (July 16, 2014)

PSG completed this Phase II Subsurface Investigation at the Site on behalf of 125 Beechwood, LLC, to investigate the potential impacts of petroleum hydrocarbons, volatile organic compounds (VOCs), PCBs, and/or metals to soil and/or groundwater from a release or releases from the former USTs, AST, and historical operations. The scope of the Phase II included the advancement of 13 borings (SB-1 through SB-13) for the collection of representative soil and groundwater samples.

Borings were advanced throughout the interior and basement of the warehouse and the exterior parking lot of the Site with terminal depths ranging between two and 19 feet below ground surface (bgs). Soil samples were collected from each boring at the 6-inch interval directly above the groundwater interface or terminal depth, whichever was shallower. Several borings had detectable photoionization detector (PID) readings between 10 to 162 parts per million by volume (ppmv), though no visual evidence of contamination was observed. Thirteen soil samples were collected and submitted for laboratory analysis of VOCs and low-level polycyclic aromatic hydrocarbons (PAHs). Three soil samples received additional PCBs analysis, and four soil samples received additional RCRA 8 Metals analysis.

Groundwater was encountered in borings SB-1, SB-5, SB-6, SB-8, SB-9, and SB-12 and the borings were converted to temporary monitoring wells to facilitate groundwater sample collection. Six groundwater samples were collected and submitted for laboratory analysis of VOCs and PAHs, with two groundwater samples also analyzed for PCBs and one groundwater sample also analyzed for RCRA 8 Metals.

No PAHs, PCBs, or RCRA 8 metals were detected above NYSDEC Soil Cleanup Objectives (SCOs) in any of the soil samples collected. Acetone was detected above the SCO for Unrestricted Use and impact to

groundwater criteria; however, acetone is a typical laboratory contaminant, and these concentrations were below the NYSDEC SCOs for Residential, Commercial, and Industrial Use. No additional VOCs were detected above their respective SCOs.

No PCBs or RCRA 8 metals were detected above NYSDEC Technical and Operation Guidance Memorandum Groundwater Standards (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS).

Several chlorinated VOCs were detected above their respective AWQS in four groundwater samples and several PAHs were identified above their respective AWQS in two groundwater samples. Specifically, tetrachloroethene (PCE), trichloroethene (TCE), and 1,1,1-trichloroethane (1,1,1-TCA), and their associated breakdown compounds were detected above their respective AWQS in groundwater samples GWSB-1, GWSB-6, and GWSB-12. The greatest concentrations were detected in GWSB-12 with concentrations of PCE at 290 microgram per liter (µg/L) and TCE at 90 µg/L, both of which exceed their respective AWQS of 5 µg/L.

Based on the findings of the July 2014 Phase II, PSG recommended the following:

- Further evaluation of the groundwater to evaluate the nature and extent of the impacts, their origin, and the potential for remedial action, and;
- The completion of a soil vapor investigation to evaluate the potential for vapor intrusion based on the VOC groundwater exceedances.

2.3 *Additional Phase II Subsurface Investigation Report,* PSG (August 22, 2014)

PSG completed this Additional Phase II Subsurface Investigation on behalf of 125 Beechwood, LLC, to further investigate the VOC and PAH impacts to groundwater and VOC impacts to soil vapor. The scope of the Phase II included the advancement of eight borings (B-1 through B-8) for the collection of representative soil, groundwater, and/or soil vapor samples. Eight soil samples were collected and placed on hold with the laboratory, pending initial sample analysis.

Borings were advanced in the approximate location of the former gasoline USTs, in the gas meter room, in the former automobile repair space, and in the former die-casting area with terminal depths ranging between three and 19 feet bgs. Soil samples were collected from each boring at the 6-inch interval directly above the groundwater interface or terminal depth, whichever was shallower. Several borings had detectable PID readings between 0.0 and 13.7 ppmv, though no visual evidence of contamination was observed.

Borings B-2, B-3, B-4, B-5, and B-8 were converted to temporary monitoring wells to facilitate groundwater sample collection. Five groundwater samples were collected and submitted for laboratory analysis of VOCs and PAHs.

Four temporary sub-slab vapor points (SG-1 through SG-4) were advanced beneath the surface to a depth of approximately 1.5 feet bgs. Air was purged from the sampling tubing using a PID for a 10-minute period then the tubing was connected to a 2.7-liter batch certified Summa Canister with a 60-minute flow controller. Four soil vapor samples were collected and submitted for laboratory analysis of VOCs.

Several chlorinated VOCs were detected above their respective AWQS in the five groundwater samples and several PAHs were identified above their respective AWQS in one groundwater sample.

PCE exceeded its respective AWQS in all five groundwater samples collected at concentrations ranging from 32 to 4,800 µg/L. TCE exceeded its respective AWQS in four of five groundwater samples collected at concentrations ranging from 12 to 1,000 µg/L.

The sub-slab soil vapor data were compared to Environmental Protection Agency (EPA) screening levels. 1,1-dichloroethane (DCA), 1,1-dichloroethene (DCE), benzene, chloroform, PCE, and/or TCE exceedances were detected in the four soil vapor samples at concentrations exceeding their corresponding EPA Vapor Intrusion Screening Levels.

Based on the findings of the August 2014 Additional Phase II, PSG concluded that subsurface groundwater conditions had been impacted and soil vapor levels below the Site building could potentially contribute to a potential vapor intrusion condition. PSG recommended that additional investigation be completed to evaluate the source of VOC and PAHs impacts, and that mitigation activities be implemented to address the indoor air and vapor intrusion issues.

Previous sample location and constituent exceedances maps are included as **Figures 3 and 6-8**, Respectively.

2.4 PSG November 2021 / February 2022 Investigation

Prior to submittal of the BCP application, PSG conducted an additional subsurface investigation at the Site to identify changes in contaminant levels since the completion of the 2014 investigations. Four soil samples, four groundwater samples, three soil vapor samples, three indoor air samples, and one ambient air sample were collected and submitted for laboratory analysis. Groundwater samples were collected from permanent monitoring wells that were installed onsite (MW-1 through MW-4) and soil vapor samples were collected from permanent soil vapor probes that were installed onsite (VP-1 through VP-3).

Monitoring well MW-1 was installed to the north of Site building in the area of the former gasoline USTs and monitoring wells MW-2 through MW-4 were installed inside of the Site building at the locations illustrated on **Figure 4**. Monitoring wells were installed to terminal depths from 15 feet to 18 feet bgs due to bedrock refusal. Depth to groundwater has been observed from 8.08 to 12.49 feet below top of casing in the monitoring wells. Attempts were made to install monitoring wells on the southwestern and southeastern exterior portions of the Site along Beechwood Avenue; however, no groundwater was encountered in the boreholes.

Soil samples SB-1 through SB-4 were collected from the locations where monitoring wells MW-1 through MW-4 were installed on October 20, 2021. Soil samples were analyzed for VOCs. Acetone was detected above the SCO for Unrestricted Use and impact to groundwater criteria; however, acetone is a typical laboratory contaminant, and these concentrations were below the NYSDEC SCOs for Residential, Commercial, and Industrial Use. No additional VOCs were detected above their respective SCOs.

On November 17-18, 2021, three soil vapor samples (VP-1 through VP-3) were collected from the permanent soil vapor probes that were installed onsite. Indoor air samples (IA-1 through IA-3) were collected at locations collocated with the soil vapor samples. Multiple chlorinated VOCs were detected in soil vapor and indoor air; however, the soil vapor results were significantly lower than the concentrations detected during the 2014 investigation. PCE was detected at a maximum concentration of 170 microgram per cubic meter (µg/m^3) in soil vapor sample VP-1 with a collocated indoor sample concentration of 6.12

µg/m^3 identified in IA-1. When compared to the New York State Department of Health (NYSDOH) Matrix, these results indicate that additional monitoring is warranted. No additional contaminants were detected at levels that would require monitoring or mitigation based on the NYSDOH Matrices.

The permanent groundwater monitoring wells (MW-1 through MW-4) were sampled on November 19, 2021. Multiple chlorinated VOCs were identified above the applicable AWQS; however, these contaminant concentrations were significantly lower than those identified during the 2014 investigation. 1,1,1-TCA was identified at a maximum concentration of 380 µg/L, 1,1-DCE was identified at a maximum concentration of 280 µg/L, PCE was identified at a maximum concentration of 200 µg/L, and TCE was identified at a maximum concentration of 62 µg/L.

On February 1-2, 2022, an additional round of soil vapor samples (VP-1 through VP-3) were collected from the permanent soil vapor probes that were installed onsite. Indoor air samples were collected at locations collocated with the soil vapor samples. Multiple chlorinated VOCs were detected in soil vapor and indoor air at concentrations similar to those detected in November 2021. PCE was detected at a maximum concentration of 144 µg/m^3 in soil vapor sample VP-1 with a collocated indoor sample concentration of 5.08 µg/m^3 identified in IA-1. TCE was detected at a maximum concentration of 6.07 µg/m^3 in soil vapor sample VP-1 with a collocated indoor sample concentration of 0.554 µg/m^3 identified in IA-1. When compared to the NYSDOH Matrix, these results indicate that additional monitoring is warranted. No additional contaminants were detected at levels that would require monitoring or mitigation based on the NYSDOH Matrices.

A second round of groundwater samples were collected from monitoring wells MW-1 through MW-4 on February 2, 2022. Multiple chlorinated VOCs were identified above applicable NYSDEC AWQS standards at concentrations similar to those detected in November 2021. 1,1,1-TCA was identified at a maximum concentration of 280 µg/L, 1,1-DCE was identified at a maximum concentration of 160 µg/L, PCE was identified at a maximum concentration of 200 µg/L, and TCE was identified at a maximum concentration of 47 µg/L.

Data from the onsite investigation completed in 2021 and 2022 are summarized on **Tables 1-3**. Sample location, sample exceedances maps, and groundwater contour maps are included as **Figures 4-8**.

2.5 Areas of Concern

Based on the investigations completed to date, PSG identified two Areas of Concern (AOCs), which will be the focus of this remedial investigation. The AOCs are listed as follows:

- AOC-1: Former Automotive Repair Space
- AOC-2: Former Die-Casting Area

Based upon the previously collected data, AOC numbers 1 and 2 were identified as areas with chlorinated compound impacts in groundwater and soil vapor. PSG recommends additional investigation to identify and delineate the extent of contamination in these areas.

3.0 FIELD INVESTIGATION

3.1 Remedial Investigation Summary

The remedial investigation will be conducted over the entire Site to further identify potential source areas and delineate the VOC and SVOC impacts previously documented onsite. The investigation will include sampling of soil, groundwater, soil vapor, and indoor/ambient air from the areas of the Site building as well as exterior areas. Soil and groundwater samples will be analyzed for VOCs, SVOCs, PCBs, pesticides, metals (including trivalent and hexavalent chromium), and emerging contaminants. Soil vapor, indoor air, and ambient air samples will be analyzed for VOCs only.

A proposed sample location map is provided as **Figure 9**.

3.2 Geophysical Survey

Prior to onsite intrusive activities, the public underground utility locating service will be notified to mark out utilities in the work area and a geophysical survey will be performed throughout the interior and exterior portions of the Site to mark the locations of any potential underground utilities or conflicts and locate subsurface features present onsite.

3.3 Soil Boring Advancement and Soil Sampling

Soil borings will be completed in nine (9) locations as per DER-10 Section 3.5.2. Soil sampling locations will be determined with consideration to soil type, depth, and data gathered from previous investigations and are planned to be completed at locations throughout the Site as illustrated on **Figure 9**. The borings will be advanced to a target depth of 20 feet bgs or refusal due to bedrock using a direct-push probe drill rig. Soil samples will be field screened by PSG personnel for evidence of contamination (e.g., odors, staining, etc.) and screened for the presence of VOCs with a calibrated PID.

At all soil boring locations, one shallow soil sample will be collected from grade to 2 feet bgs and a second soil sample will be collected at the interval with the highest likelihood for contamination based on field screening results, or from boring terminus if no indication of impacts are observed.

Soil samples slated for laboratory analysis will be labeled and placed in laboratory-supplied containers and shipped via courier with chain-of-custody (COC) documentation, in accordance with appropriate EPA protocols, to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Soil samples will be analyzed for Target Compound List (TCL) VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, PCBs by EPA Method 8082, pesticides by EPA Method 8081, Target Analyte List (TAL) metals by EPA Method 6000/7000 series, hexavalent chromium by EPA Method 7196A, 1,4-dioxane by EPA Method 8270, and Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) compounds by EPA Method 1633. Sampling for emerging contaminants will be conducted in accordance with the November 2022 NYSDEC-issued sampling protocol ("Sampling, Analysis, and Assessment of PFAS"). Appropriate quality assurance/quality control (QA/QC) samples will be collected for the soil sampling event including one trip blank, one field duplicate sample, one matrix spike sample, and one matrix spike duplicate.

3.4 Monitoring Well Installation and Groundwater Sampling

There are currently four (4) existing groundwater monitoring wells located at the Site (MW-1 through MW-4).

Three (3) additional 2-inch diameter permanent groundwater monitoring wells (identified as MW-5 through MW-7) will be installed by a NY-licensed well driller. The additional wells will be installed at the locations illustrated on **Figure 9**.

The additional permanent groundwater monitoring wells will be installed to 20 feet bgs or refusal due to bedrock. As groundwater at the Site has been detected between 8 and 13 feet below the top of casing in the four (4) existing monitoring wells, a 15-foot long section of PVC screen will be set at the base of the well from approximately 20 feet bgs to 5 feet bgs in order to straddle the groundwater interface. Solid-walled PVC casing will extend from 5 feet bgs to ground surface. A silica sand pack will be placed from the base of the borehole to between one foot and two feet above the top of the well screen, using media appropriately sized based on Site-specific geologic conditions (tentatively 0.010-slot screen and 20-40 silica sand). No other groundwater units have been encountered at this Site in the overburden formation and therefore, only the shallow groundwater unit identified between 8 and 20 feet bgs will be evaluated at this time.

The annular space of the well will be sealed to ground surface using cement-bentonite grout. The top of the well installed will be finished with a lockable, water-tight cap and flush-mount steel cover. The newly installed monitoring well will be developed by purging and/or pumping the water in the well to loosen and remove suspended fines. Measurements of the water volume removed and water quality parameters including temperature, pH, conductivity, and turbidity will be recorded at regular intervals throughout the development process. Development will continue until the NYSDEC standard of 50 Nephelometric Turbidity Unit (NTU) is measured with a nephelometer and water is visibly free of sediment. The top of the PVC casing for the new well will be surveyed by a NY-licensed surveyor and depth to groundwater measurements will be recorded in the well.

After allowing the newly installed well to equilibrate for approximately one week following installation and development, the wells will be sampled as described below.

Groundwater samples will be collected from the seven (7) groundwater monitoring wells. Prior to sampling, an electronic interface meter will be used to measure water levels and the water column will be purged used low-flow procedures. The purge water will be monitoring for field parameters including pH, oxidation-reduction potential (ORP), specific conductivity, dissolved oxygen, temperature, and depth to water for approximately 30 to 60 minutes or until stabilized.

Groundwater samples slated for laboratory analysis will be placed in laboratory-supplied containers and shipped in accordance with appropriate EPA protocols to a NYSDOH ELAP-certified laboratory. The samples will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, PCBs by EPA Method 8082, pesticides by EPA Method 8081, and total and dissolved TAL metals by EPA Method 6000/7000 series and PFAS compounds by EPA Method 1633 and 1,4-dioxane by EPA Method 8270. Sampling for emerging contaminants will be conducted in accordance with the November 2022 NYSDEC-issued sampling protocol ("Sampling, Analysis, and Assessment of PFAS"), with the exception that a low-density polyethylene (LDPE) bladder will be used as no industry-approved high-density polyethylene

(HDPE) alternative currently exists. Appropriate QA/QC samples will be collected for the groundwater sampling event including one trip blank, one field duplicate sample, one matrix spike sample, and one matrix spike duplicate sample per day of sampling. Well sampling details will be noted on groundwater sampling logs, which will be included as an appendix to the Remedial Investigation Report (RIR).

3.5 Soil Vapor, Indoor Air, and Ambient Air Sampling

Soil vapor, indoor air, and ambient air sampling will be performed at the Site in accordance with the NYSDOH document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006". A total of seven (7) soil vapor samples, six (6) indoor air samples, and one (1) ambient air sample are proposed to be collected as a part of this investigation.

3.5.1 Soil Vapor Sampling

Prior to completing the soil sampling and groundwater monitoring well installation described in Sections 3.3 and 3.4, six (6) interior sub-slab soil vapor samples and one (1) exterior soil vapor sample will be collected at the locations illustrated on **Figure 9**. Soil vapor sampling will be conducted in accordance with the New York State SVI Guidance and DER-10 Section 3.6. There are currently three (3) permanent soil vapor probes installed within the interior of the Site (VP-1 through VP-3); therefore, these three (3) soil vapor probes will be sampled and an additional four (4) soil vapor probes will be installed. The interior sub-slab soil vapor samples will be collected at each of the six (6) permanent soil vapor probe locations from beneath the concrete slab of the on-site building in Summa canisters which have been certified clean by the laboratory. The exterior soil vapor sample will be collected by advancing a borehole to approximately five (5) feet bgs, inserting an implant connected to Teflon-lined tube, filling the annular space with sand, and sealing off the surface area where the tubing meets the ground surface with hydrated granular bentonite.

Soil vapor samples will be analyzed by using USEPA Method TO-15. Flow rate of both purging and sampling will not exceed 0.2 liter per minute (L/min) for soil vapor and sub-slab soil vapor sampling. Soil vapor sampling will occur for the duration of eight hours. A sample log sheet will be 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, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor evaluation, a tracer gas will be used in accordance with the New York State SVI Guidance to serve as a QA/QC device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a shroud will serve to keep it in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence (>10% of the tracer as outlined in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, with revisions October 2006) of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

3.5.2 Indoor Air and Ambient Air Sampling

A total of seven (7) air samples will be collected at the Site. Six (6) of the samples will be collected from locations within the building that are collocated with the sub-slab vapor sample locations, and one (1) of the samples will be an ambient/background air sample collected outside of the building. The air samples will be collected concurrently with the interior sub-slab soil vapor samples at the locations proposed on **Figure 9**. The air samples will be collected over a period of approximately eight-hours per NYSDOH Vapor Intrusion (VI) Guidance Manual requirements for non-residential buildings. The air samples will be collected using laboratory-supplied six (6) liter evacuated Summa canisters with calibrated flow controllers.

A sample log sheet will be 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, apparent moisture content of the sampling zone, and chain of custody protocols.

The air samples will be analyzed for VOCs using EPA method TO-15.

3.6 Investigation Derived Waste

Soil samples will also be collected via direct-push technology; therefore, little to no investigation derived waste (IDW) will be generated.

As permitted in Section 3.3(e) of DER-10, the limited soil cuttings generated by sampling activities will be returned to the borehole to within 12-inches of the surface, followed by clean cohesive soil which will be compacted within the borehole, or bentonite, to allow for restoration of the pavement surface.

Soil cuttings from boreholes that has free product visible in it, has penetrated an aquitard, or extended into bedrock, will be containerized in DOT-approved shipping containers and stored onsite, within the fenced area, until transportation and disposal are arranged. Soil cuttings will be containerized at the end of each day and will not be stored outside of a container or borehole overnight. Waste profiles, and hazardous waste determination, will be generated based on the site sampling results and the soil cuttings will be disposed of as hazardous or non-hazardous pending the onsite sampling results and the requirements of the disposal facility.

Drilling cuttings, development water, purge water, and other soil generated on-site during an investigation from the installation of monitoring wells are presumed to be contaminated. These cuttings will be containerized in DOT-approved shipping containers and stored onsite, within the fenced area, until transportation and disposal are arranged. Waste profiles, and hazardous waste determination, will be generated based on the site sampling results and the soil will be disposed of as hazardous or non-hazardous pending the onsite sampling results and the requirements of the disposal facility.

Liquids derived from the purging of monitoring wells will be containerized in DOT-approved shipping containers and stored onsite, within the fenced area, until laboratory results are received, and transportation and disposal are arranged. Waste profiles and hazardous waste determination will be generated based on the sample results derived from the wells and the requirements of the disposal facility. All waste will be managed per the requirements of 6 NYCRR Part 360, 364, and 370 as applicable.

IDW shall be handled only by licensed waste haulers and will only be transported to permitted, authorized disposal facilities once a waste profile has been created and approved. PSG will provide the NYSDEC the disposal facility's information and the waste hauler's permits once they are secured and will provide copies of disposal manifests in subsequent reporting.

3.7 Electronic Data Deliverables

All sampling results (soil, groundwater, soil vapor, indoor/ambient air) shall be submitted in the NYSDEC's environmental information management system format for electronic data deliverables (EDD).

3.8 Project Organization

PSG has established a project team for this project whose collective qualifications and experience are strongly suited for successful completion of the project. The resumes of the individuals are included as **Appendix C**. The proposed responsibilities of the key staff are summarized below:

Ally Hassler will be the Project Geologist and Site Health and Safety Officer for the work. In this capacity Mrs. Hassler will be responsible for the successful completion of each task including coordination and supervision of subcontractors, engineers, and scientists.

Anthony Cauterucci, CHMM will be the Project Manager and Quality Leader, responsible for the development of the work plan, and maintaining quality assurance policies that pertain to all aspects of sample acquisition and data management, and adherence to the work plan, schedule, and budget.

David Lent, PG will act as an advisor for remedial investigation activities as preparations are made for remediation. Mr. Lent will be the supervising environmental professional for the investigation activities and will be certifying the Remedial Investigation Report.

3.9 Proposed Project Schedule

PSG intends to begin the onsite field investigation in June 2023 based on the assumption that this RIWP is accepted and approved by May 2023. The complete investigation is anticipated to require 5 business days onsite; however, this schedule is subject to change based on Site conditions, field observations, and weather. The following is the anticipated schedule for execution of the RIWP:

- Submission of RIWP – January 2023
- Approval of RIWP and Public Comment Period – April-May 2023
- Remedial Investigation Fieldwork – June 2023
- Submit RIR to NYSDEC – September 2023

4.0 QUALITY ASSURANCE/QUALITY CONTROL

4.1 Quality Assurance/Quality Control Procedures

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. All site investigation activities will be conducted in compliance with the Technical Guidance for Site Investigation and Remediation, as per NYS DEC DER-10. A summary of the field and laboratory QA/QC procedures is provided below.

4.2 Direct-Push Drilling

The following procedures will be implemented as QA/QC procedures for boring installation and sampling:

- Disposable PVC Macro Core liners, or similar, will be utilized for the entire length of all boring locations to prevent cross-contamination of soil.
- If drilling in loose or non-cohesive soils, a core catcher was used to ensure the full soil section is recovered.
- If drilling is in tight soils, a spacer ring or extended shank cutting shoe was used to ensure full soil recovery.

4.3 Field QA/QC

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, on a daily basis,
- Analysis of trip blank (VOCs only) and duplicate samples,
- Use of dedicated and/or disposal field sampling equipment,
- Proper sampling handling and preservation,
- Proper sample chain of custody documentation, and
- Completion of report logs.

The above procedures will be executed as follows:

- Two (2) duplicate samples (one soil sample and one groundwater sample) will be collected to evaluate field sampling precision or reproducibility of measurements of the same parameter under the given set of conditions;
- Two (2) Matrix Spike/Matrix Spike Duplicate (MS/MSD) (one soil sample and one groundwater sample) samples will be collected to evaluate the effect of the matrix on sample results;
- Disposable sampling equipment, including acetate sleeves, latex gloves, and disposable bailers (or sample tubing), will be used to minimize cross-contamination between samples;

- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis if necessary;
- Because plasticizers and other organic compounds inherent in plastic containers may contaminate samples requiring organic analysis, samples will be collected in glass containers, with the exception of the nitrate-preserved groundwater sample for metals analysis; and
- Appropriate sample preservation techniques, including cold temperature storage at 4º C, will be utilized to ensure that the analytical parameters concentrations do not change between the time of sample collection and analysis; and

Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical result.

4.4 Sample Custody

Sample handling in the field will conform to appropriate sample custody procedures. Field custody procedures included proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Sample labels will be attached to all sampling bottles before field activities began to ensure proper sample identification. Each label will identify the site and sample location. Styrofoam or bubble wrap will be used to absorb shock and prevent breakage of sample containers. Ice or ice packs will be placed in between the plastic bags for sample preservation purposes.

After each sample was collected and appropriately identified, the following information will be entered into the chain-of-custody form:

- Site name and address,
- Sampler(s)' name(s) and signature(s);
- Names and signatures of persons involved in the chain of possession of samples;
- Sample number;
- Number of containers;
- Sample location;
- Date and time of collection;
- Type of sample, sample matrix and analyses requested;
- Preservation used (if any); and
- Any pertinent field data collected (pH, temperature, conductivity, Dissolved Oxygen [DO]).

The sampler will sign and date the "Relinquished" blank space prior to removing one copy of the custody form and sealing the remaining copies of the form in a Ziploc plastic bag taped to the underside of the sample cooler lid. The sample cooler will be sealed with tape prior to delivery or shipment to the laboratory.

4.5 Report Logs

Field logs and borings logs will be completed during the course of this investigation. Field logs will be

completed on a daily basis and will describe all field activities including:

- Project number, name, manager, and address;
- The date and time;
- The weather conditions;
- On-site personnel and associated affiliations;
- Description of field activities; and
- Pertinent sample collection information including sample identification numbers, description of samples, location of sampling points, number of samples taken, method of sample collection and any factors that may affect its quality, time of sample collection, name of collector, and field screening results.

A boring/monitoring well log will be completed for each boring/monitoring well and include the following information:

- Project number, name, manager, and location;
- The date and time;
- Drilling company and method used;
- Boring/Well number;
- Total boring/well depth and water table depths; and
- Pertinent soil sample information including sample number, interval, depth, amount recovered, color, composition, percent moisture, visual and olfactory observations of contamination, and PID readings.

4.6 Laboratory QA/QC

The laboratory will perform the sample analysis in accordance with the most recent NYSDEC Analytical Services Protocol (ASP) and will have an Environmental Laboratory Approval Program (ELAP) certification for the applicable analytes. The laboratory will follow the following QA/QC protocols. All samples will be delivered to the laboratory within 24 hours of sample collection. Samples will be received by laboratory personnel, who inspect the sample cooler(s) to check the integrity of the custody seals. The cooler(s) will then be opened, the samples unpackaged, and the information on the chain-of-custody form examined. If the shipped samples match those described on the chain-of-custody form, the laboratory sample custodian will sign and date the form on the next "Received" blank and assumed responsibility for the samples. If problems are noted with the sample shipment, the laboratory custodian will sign the form and record problems in the "Remarks" box. The custodian will then immediately notify the Project Manager so appropriate follow-up steps can be implemented on a timely basis.

A record of the information detailing the handling of a particular sample through each stage of analysis will be maintained by the laboratory. The record will include:

- Job reference, sample matrix, sample number, and date sampled;
- Date and time received by laboratory, holding conditions, and analytical parameters;

- Extraction date, time, and extractor's initials (if applicable), analysis date, time, and analyst's initials;
- QA batch number, date reviewed, and reviewer's initials.
- Laboratory reporting limits for PFAS in soil will be no higher than 0.5 micrograms per kilogram (µg/kg). Laboratory reporting for 1,4-dioxane in soil will not exceed 0.1 milligrams per kilogram (mg/kg) in soil.
- The laboratory reporting limit for PFAS in groundwater will be 2 nanograms per liter (ng/L) (ppt). The method detection limit for 1,4-dioxane in groundwater will not exceed 0.35 µg/L.

4.7 Data Submittal

Analytical data will be submitted in complete ASP category B data packs. Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. Where appropriate, trip blanks, field blanks, and field duplicates shall be performed at a rate of 5% and will be used to assess the quality of the data. The laboratory's in-house QA/QC limits will be utilized whenever they are more stringent than those suggested by the EPA methods. Preliminary data will be submitted to the NYSDEC and the NYSDOH as soon as the data becomes available.

4.8 Third Party Data Analysis

Per the requirements of Section 2.2 of DER-10 a *Data Usability Summary Report* (DUSR) will be prepared by a qualified data validator who is independent of the laboratory providing the sample analysis. The DUSR will evaluate the data package provided by the laboratory to determine if they ae meet the project quality parameters and represent usable results.

5.0 HEALTH AND SAFETY PLAN

The investigation HASP is included in **Appendix B**. The Site Health and Safety Officer is Ally Hassler. Investigative work will be performed in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. The parties performing the investigation work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations.

All field personnel involved in investigation activities will have participated in training required under 29 CFR 1910.120, including 40-hour HAZWOPER training and annual 8-hour refresher training. The Site Safety Coordinator will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign a HASP acknowledgment. Site-specific training will be provided to field personnel. Emergency telephone numbers will be posted at the site location before any work began. A safety meeting will be conducted before each shift begins; topics discussed will include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics.

6.0 REPORTING REQUIREMENTS

Upon completion of all field work and receipt of laboratory analytical results, a RIR will be prepared in compliance with Section 3.14 of the DER-10 and submitted to the NYSDEC for review and approval. The RIR will document field activities; present field and laboratory data; evaluate exposure pathways in an exposure assessment; identify and characterize the source(s) of contamination; provide a summary of the overall nature and extent of contamination using the applicable standards, criteria, and guidance; and discuss conclusions and recommendations drawn from the results of the remedial investigation.

6.1 Sample Assessment

The RIR will include three separate sections that present field and laboratory data for soil, groundwater, and soil vapor/indoor air/ambient air results. The soil section will include a description of soil characteristics; the groundwater section will include a description of groundwater characteristics; and the soil vapor/indoor air section will include a description of soil vapor and indoor air characteristics. Field and laboratory analytical results for each medium will be presented and compared with regulatory standards and/or guidance values as applicable. Summary tables and figures will be provided for each separate medium. Soil boring logs, groundwater sampling logs, and soil vapor, indoor air, and ambient air logs, will be provided as separate attachments. Laboratory analytical reports and Category B deliverables will be provided by the laboratory and included as separate attachments. Finally, a third-party DUSR will be prepared and discussed.

6.2 Qualitative Human Health Exposure Assessment

As per Appendix 3B of the NYSDEC's DER-10, the RIR will include a Qualitative Human Health Exposure Assessment to evaluate and document how sensitive receptors might be exposed to site-related contaminants, and to identify and characterize the potentially exposed receptors currently, and under the reasonably anticipated future use of the site.

6.3 Fish and Wildlife Resources Impact Analysis

As per NYSDEC's DER-10, the RIR will evaluate if a include a Fish and Wildlife Resources Impact Analysis is needed to identify impacts to fish and wildlife resources from site contaminants.

TABLES

Table 1
Soil Sampling Results - 2021
125 Beechwood Avenue
New Rochelle, New York 10801
NYSDEC BCP Site Number: C360232

Sample No.	Laboratory ID.#	Date Collected	Sample Depth (ft.)	Acetone	PCE	TCE	111-TCA	11-DCE	C12-DCE	T12-DCE	Methylene Chloride	Carbon Tetrachloride	Vinyl Chloride
NY-UNRES (mg/kg)				0.05	1.3	0.47	0.68	0.33	0.25	0.19	0.05	0.76	0.02
NY-RESGW (mg/kg)				0.05	1.3	0.47	0.68	0.33	0.25	0.19	0.05	0.76	0.02
NY-RESR (mg/kg)				100	5.5	10	100	100	59	100	51	1.4	0.21
NY-RESC (mg/kg)				500	150	200	500	500	500	500	500	22	13
SB-1	L2157809-01	10/20/2021	17-17.5	ND (0.011)	ND (0.00056)	ND (0.00056)	ND (0.00056)	ND (0.0011)	ND (0.0011)	ND (0.0017)	ND (0.00056)	ND (0.0011)	ND (0.0011)
SB-2	L2157809-02	10/20/2021	14.5-15	ND (0.0047)	0.0002 J	ND (0.00047)	ND (0.00047)	ND (0.00094)	ND (0.00094)	ND (0.0014)	ND (0.00047)	ND (0.00094)	ND (0.00094)
SB-3	L2157809-03	10/20/2021	14.5-15	0.15	ND (0.00048)	ND (0.00048)	ND (0.00048)	ND (0.00096)	ND (0.00096)	ND (0.0014)	ND (0.00048)	ND (0.00096)	ND (0.00096)
SB-4	L2157809-04	10/20/2021	13.5-14	ND (0.01)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0015)	ND (0.0005)	ND (0.001)	ND (0.001)

Legend:

mg/kg: milligrams per kilogram, ppm
NY-UNRES: New York Unrestricted Use Criteria
NY-RESC: New York Restricted Use Commercial Criteria
NY-RESR: New York Restricted Use Residential Criteria
NY-RESGW: New York Restricted Use Groundwater Criteria
--: Not Established
NA: Not Analyzed
J: Estimated Concentration
<0.00019 Not Detected followed by method detection limit (MDL)
560 J Concentration in excess of NY SCO criteria
ND (0.0093) MDL exceeds the most stringent NYSDEC criteria

PCE: Tetrachloroethene
TCE: Trichloroethene
c12-DCE: cis-1,2-Dichloroethene
t12-DCE: trans-1,2-Dichloroethene
11-DCE: 1,1-Dichloroethene
111-TCA: 1,1,1-Trichloroethane

Table 2
Groundwater Sampling Results - 2021 - 2022
125 Beechwood Avenue
New Rochelle, New York 10801
NYSDEC BCP Site Number: C360232

Sample No.	Laboratory ID.#	Date Collected	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	PCE	TCE	111-TCA	11-DCA	C12-DCE	12-DCA	11-DCE	Vinyl Chloride
NY-TOGS AWQS (ug/l)						5	5	5	5	5	0.6	5	2
MW-1	L2164340-02	11/18/2021	52.09	8.08	44.01	36	3.9	47	12	11	0.16 J	36	0.16 J
	L2206081-01	2/2/2022	52.09	8.24	43.85	62	5.3	96	10	10	0.16 J	54	ND (0.07)
MW-2	L2164340-02	11/18/2021	54.93	11.38	43.55	78	17	380	54	27	1.2 J	280	0.3 J
	L2206081-02	2/2/2022	54.93	11.58	43.35	53	11	280	26	20	0.62 J	160	0.23 J
MW-3	L2164340-03	11/18/2021	54.73	12.35	42.38	15	6.1	28	9.6	5.6	0.15 J	30	0.86 J
	L2206081-03	2/2/2022	54.73	12.49	42.24	17	6.3	47	9.2	5.3	0.19 J	37	1.4
MW-4	460-221073-4	11/18/2021	54.73	11.61	43.12	200	62	330	52	34	1 J	170	0.36 J
	L2206081-04	2/2/2022	54.73	12.23	42.50	200	47	250	36	27	0.73 J	120	ND (0.14)

Legend:

µg/l: micrograms per liter, ppb
NY-TOGS AWQS: New York Technical & Operational Guidance Series Ambient Water Quality Standards
--: Not Established
J: Estimated Concentration
ND: Not Detected
ND (0.21) Not Detected followed by method detection limit (MDL)
260 Concentration in excess of NY TOGS AWQS

PCE: Tetrachloroethene
TCE: Trichloroethene
c12-DCE: cis-1,2-Dichloroethene
t12-DCE: trans-1,2-Dichloroethene
11-DCE: 1,1-Dichloroethene
111-TCA: 1,1,1-Trichloroethane
11-DCA: 1,1-Dichloroethane

Table 3
Soil Vapor and Indoor Air Sampling Results (2021-2022) - Matrix A
125 Beechwood Avenue
New Rochelle, New York 10801
NYSDEC BCP Site Number: C360232

Soil Vapor/Indoor Air Matrix A			
TCE, c12-DCE, 11-DCE, Carbon Tetrachloride			
	Indoor Air COC (mcg/m3)		
Sub-Slab Vapor COC (mcg/m3)	< 0.2	0.2 to < 1	1 and above
< 6	1. NFA	2. NFA	**3. Identify Source(s) and Resample or Mitigate**
6 to < 60	4. NFA	**5. Monitor**	**6. Mitigate**
60 and above	**7. Mitigate**	**8. Mitigate**	**9. Mitigate**

ND: not detected above laboratory reporting limits
TCE: Trichloroethene
c12-DCE: cis-1,2-Dichloroethene
11-DCE; 1,1-Dichloroethene
mcg/m3: micrograms per cubic meter
NFA: No Further Action

	November 2021 Indoor Air Sampling			February 2021 Indoor Air Sampling		
	IA-1	IA-2	IA-3	IA-1	IA-2	IA-3
TCE	0.897	0.355	0.118	0.554	0.215	ND
c12-DCE	0.04 J	0.044 J	ND	ND	ND	ND
11-DCE	0.599	0.396	ND	0.42	0.365	ND
Carbon Tetrachloride	0.554	0.428	0.415	0.44	0.497	0.465

	November 2021 Soil Vapor Sampling			February 2021 Soil Vapor Sampling		
	VP-1	VP-2	VP-3	VP-1	VP-2	VP-3
TCE	ND	1.33	ND	6.07	3.81	ND
c12-DCE	ND	ND	ND	ND	ND	ND
11-DCE	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.39 J	0.396 J	ND	ND	ND	ND

Table 3
Soil Vapor and Indoor Air Sampling Results (2021-2022) - Matrix B
125 Beechwood Avenue
New Rochelle, New York 10801
NYSDEC BCP Site Number: C360232

Soil Vapor/Indoor Air Matrix B			
PCE, 111-TCA, Methylene Chloride			
	Indoor Air COC (mcg/m3)		
Sub-Slab Vapor COC (mcg/m3)	< 3	3 to < 10	10 and above
< 100	1. NFA	2. NFA	**3. Identify Source(s) and Resample or Mitigate**
100 to <1000	4. NFA	**5. Monitor**	**6. Mitigate**
1000 and above	**7. Mitigate**	**8. Mitigate**	**9. Mitigate**

ND: not detected above laboratory reporting limits
PCE: Trichloroethene
111-TCA: cis-1,2-Dichloroethene
mcg/m3: micrograms per cubic meter
NFA: No Further Action

	November 2021 Indoor Air Sampling			February 2021 Indoor Air Sampling		
	IA-1	IA-2	IA-3	IA-1	IA-2	IA-3
PCE	**6.12**	2.9	1.23	**5.08**	2.04	0.156
111-TCA	2.8	1.48	0.153	1.42	1.07	ND
Methylene Chloride	1.5 J	0.681 J	0.643 J	ND	ND	ND

	November 2021 Soil Vapor Sampling			February 2021 Soil Vapor Sampling		
	VP-1	VP-2	VP-3	VP-1	VP-2	VP-3
PCE	**170**	28.9	2.48	**144**	49	ND
111-TCA	7.15	168	8.02	5.06	121	ND
Methylene Chloride	0.549 J	ND	ND	ND	ND	ND

Table 3
Soil Vapor and Indoor Air Sampling Results (2021-2022) - Matrix C
125 Beechwood Avenue
New Rochelle, New York 10801
NYSDEC BCP Site Number: C360232

Soil Vapor/Indoor Air Matrix C		
Vinyl Chloride		
	Indoor Air COC (mcg/m3)	
Sub-Slab Vapor COC (mcg/m3)	< 0.2	0.2 and above
< 6	1. NFA	2. NFA
6 to <60	3. Monitor	**4. Mitigate**
60 and above	**5. Mitigate**	**6. Mitigate**

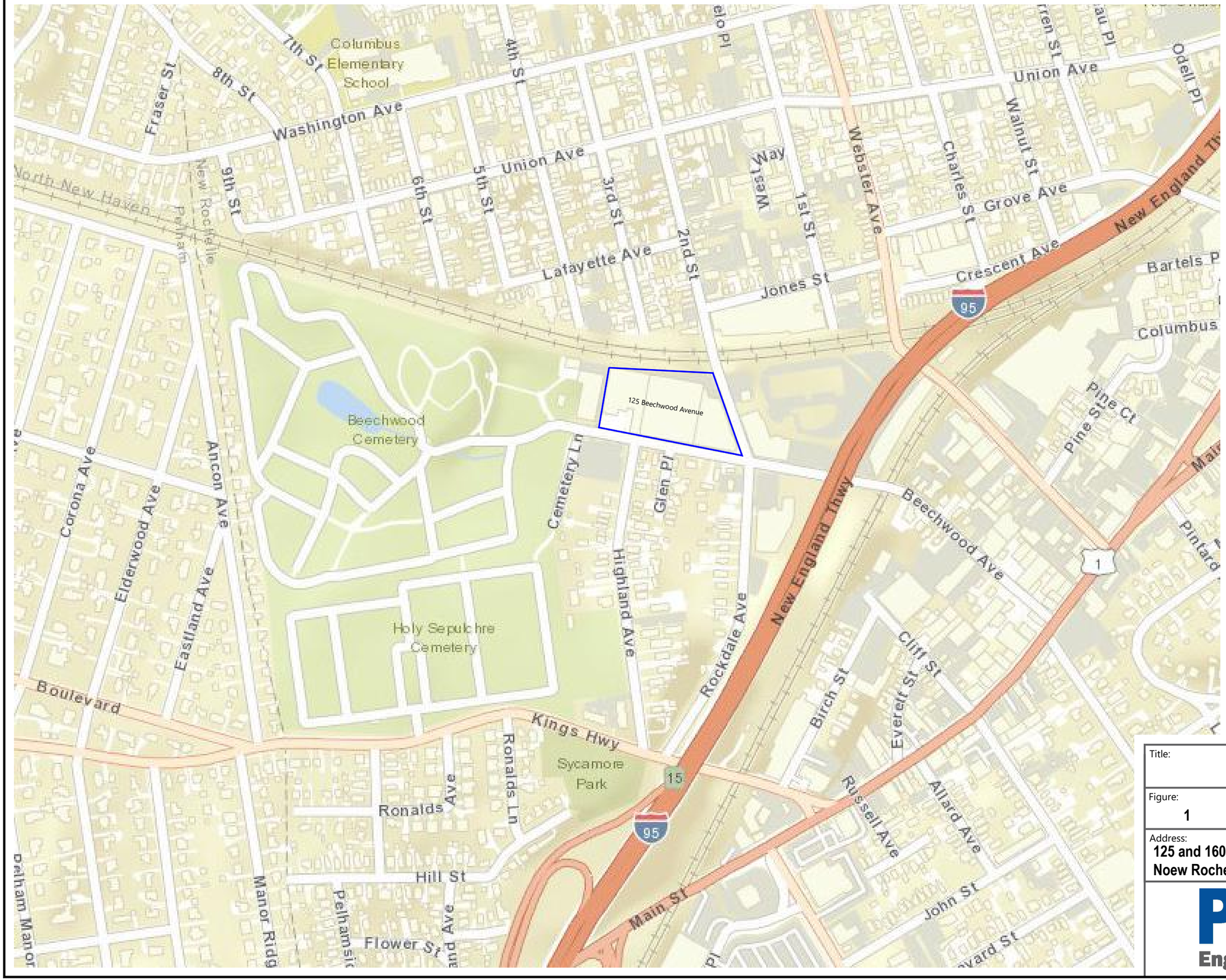
	November 2021 Indoor Air Sampling			February 2021 Indoor Air Sampling		
	IA-1	IA-2	IA-3	IA-1	IA-2	IA-3
Vinyl Chloride	ND	ND	ND	ND	ND	ND

	November 2021 Soil Vapor Sampling			February 2021 Soil Vapor Sampling		
	VP-1	VP-2	VP-3	VP-1	VP-2	VP-3
Vinyl Chloride	ND	ND	ND	ND	ND	ND

ND: not detected above laboratory reporting limits
mcg/m3: micrograms per cubic meter
NFA: No Further Action

FIGURES

PSG



Legend and Notes:

Site Boundary

N

200' 0' 200' 400'

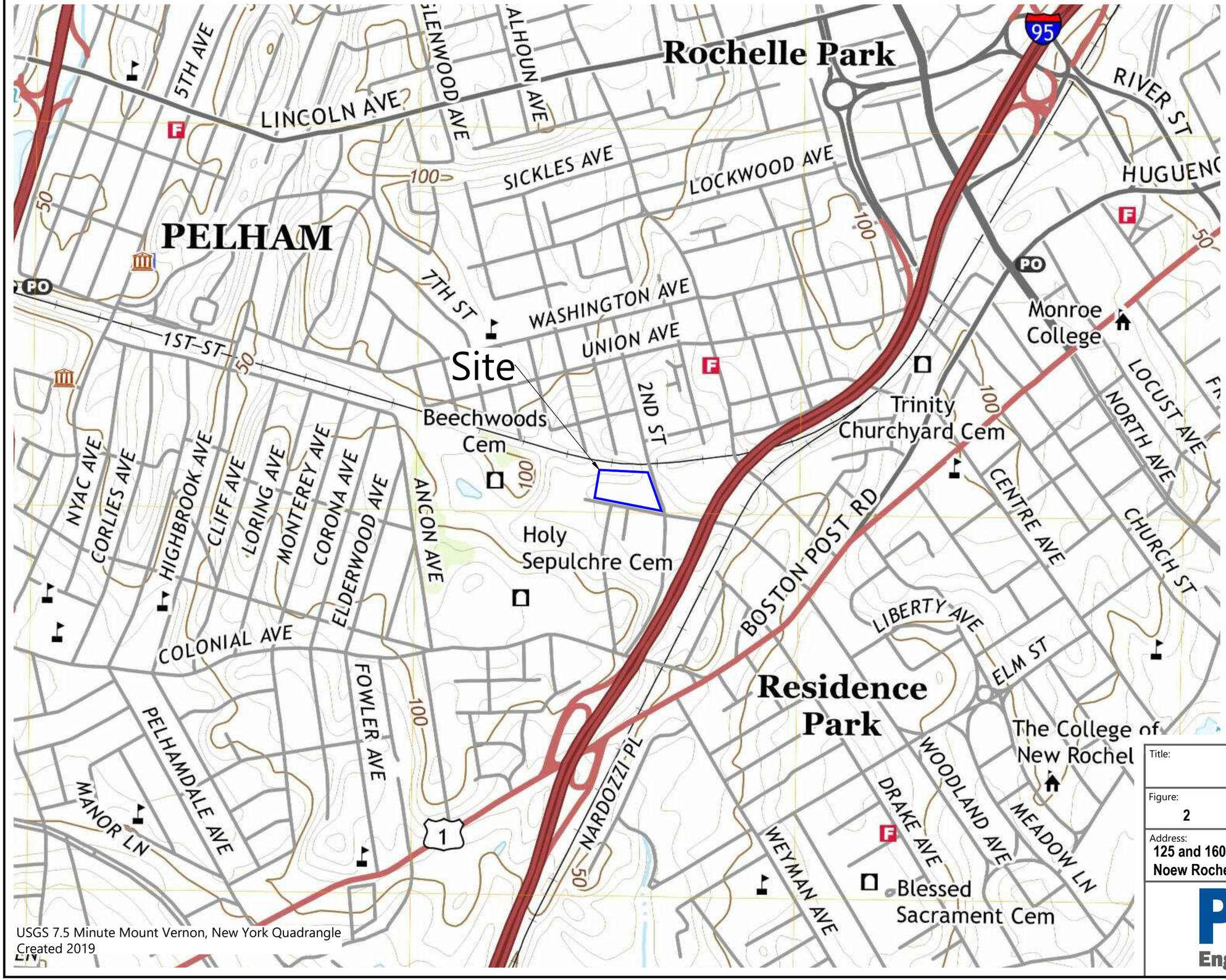
Approximate Scale

Title: **Site Location Map**

Figure:	Prepared By:	Date:	Project Number:
1	AS	October 2021	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

PARTNER
Engineering and Science, Inc.



USGS 7.5 Minute Mount Vernon, New York Quadrangle
Created 2019

Legend and Notes:

Site Boundary

N

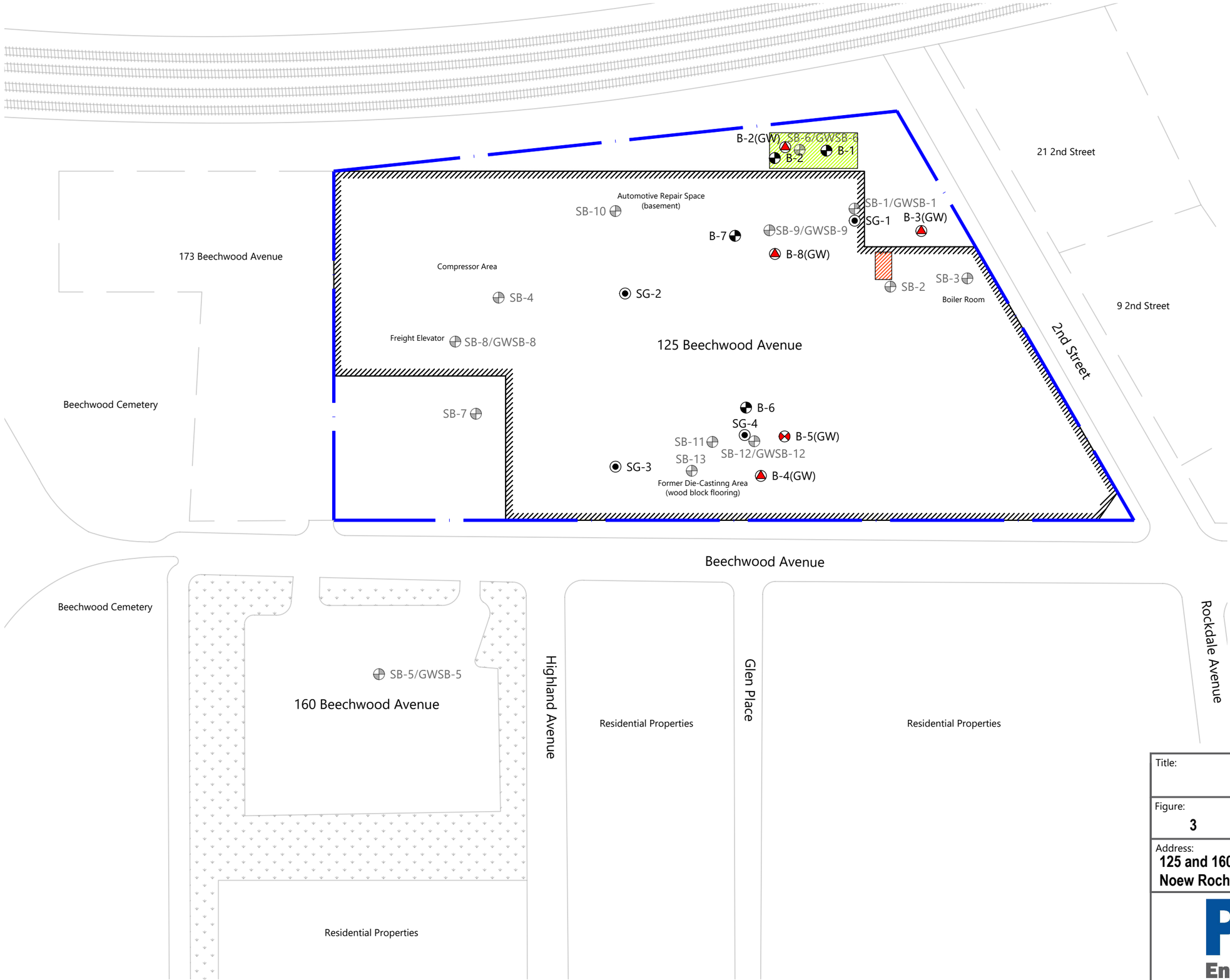
400' 0' 400' 800'

Approximate Scale

Title: **Topographic Map**			
Figure: **2**	Prepared By: **AS**	Date: **October 2021**	Project Number: **21393176-EN**

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

PARTNER
Engineering and Science, Inc.

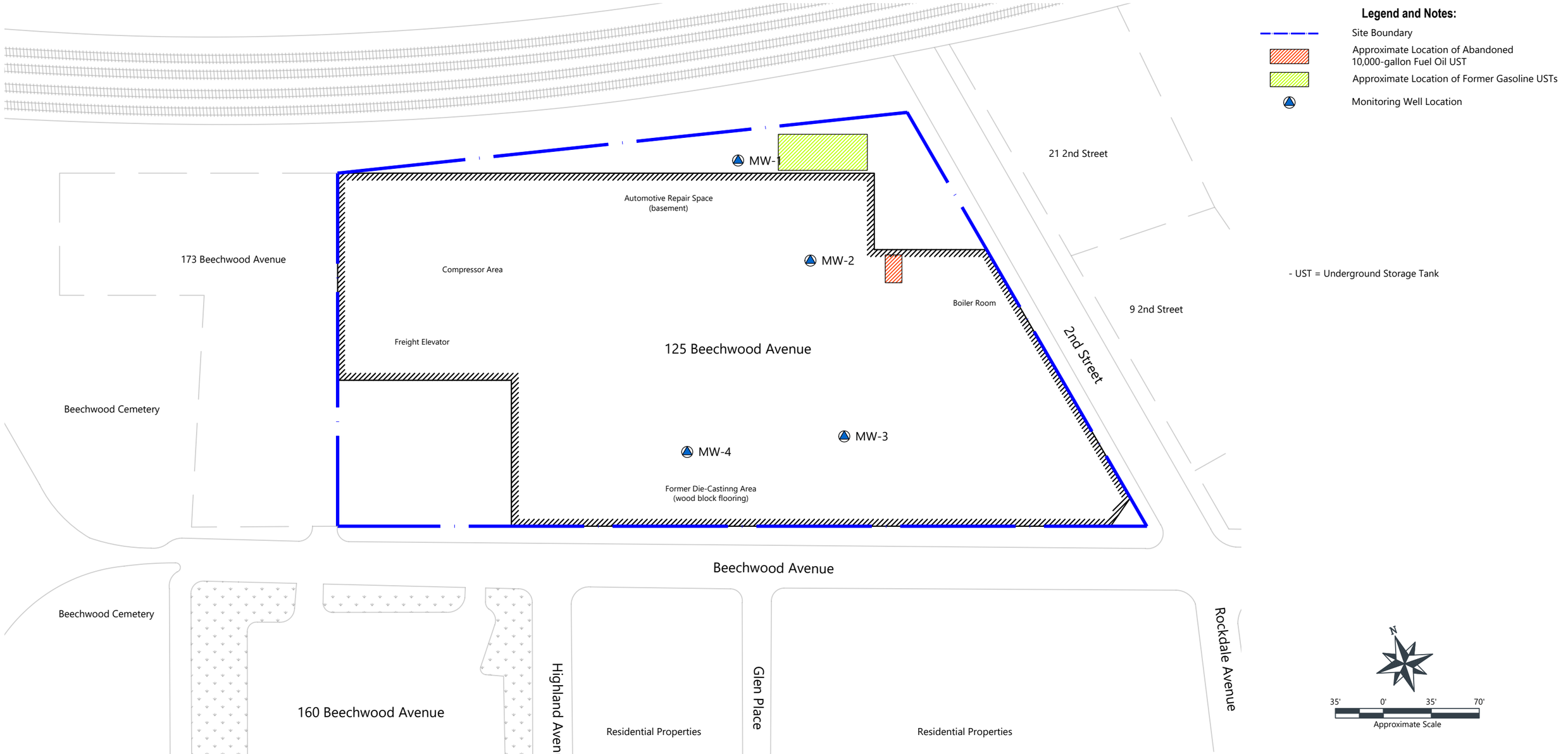


Title: **Historical Sample Location Map**

Figure:	Prepared By:	Date:	Project Number:
3	AS	October 2021	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

PARTNER
Engineering and Science, Inc.

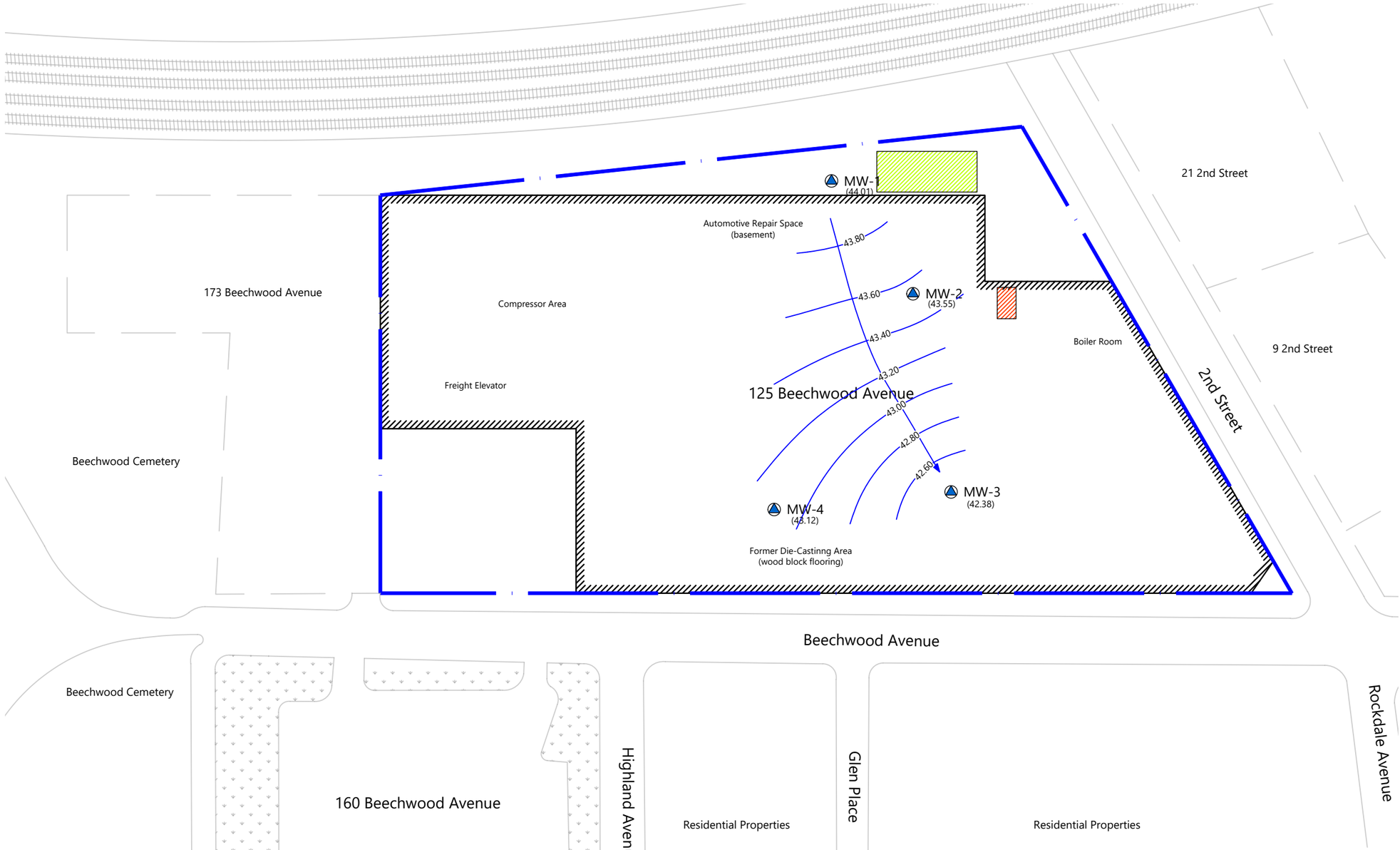


Title: **Monitoring Well Location Map**

Figure:	Prepared By:	Date:	Project Number:
4	AS	November 2021	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

PARTNER
Engineering and Science, Inc.



Legend and Notes:

- Site Boundary
- Approximate Location of Abandoned 10,000-gallon Fuel Oil UST
- Approximate Location of Former Gasoline USTs
- Monitoring Well Location
- Water Level Contour (FT AMSL) — 43.00
- Horizontal Direction of Groundwater Flow

- UST = Underground Storage Tank
- Wells Gauged on November 18, 2021
- Elevations and Contours in Feet Above Mean Sea Level (FT AMSL)
- Contour Interval = 0.2 FT

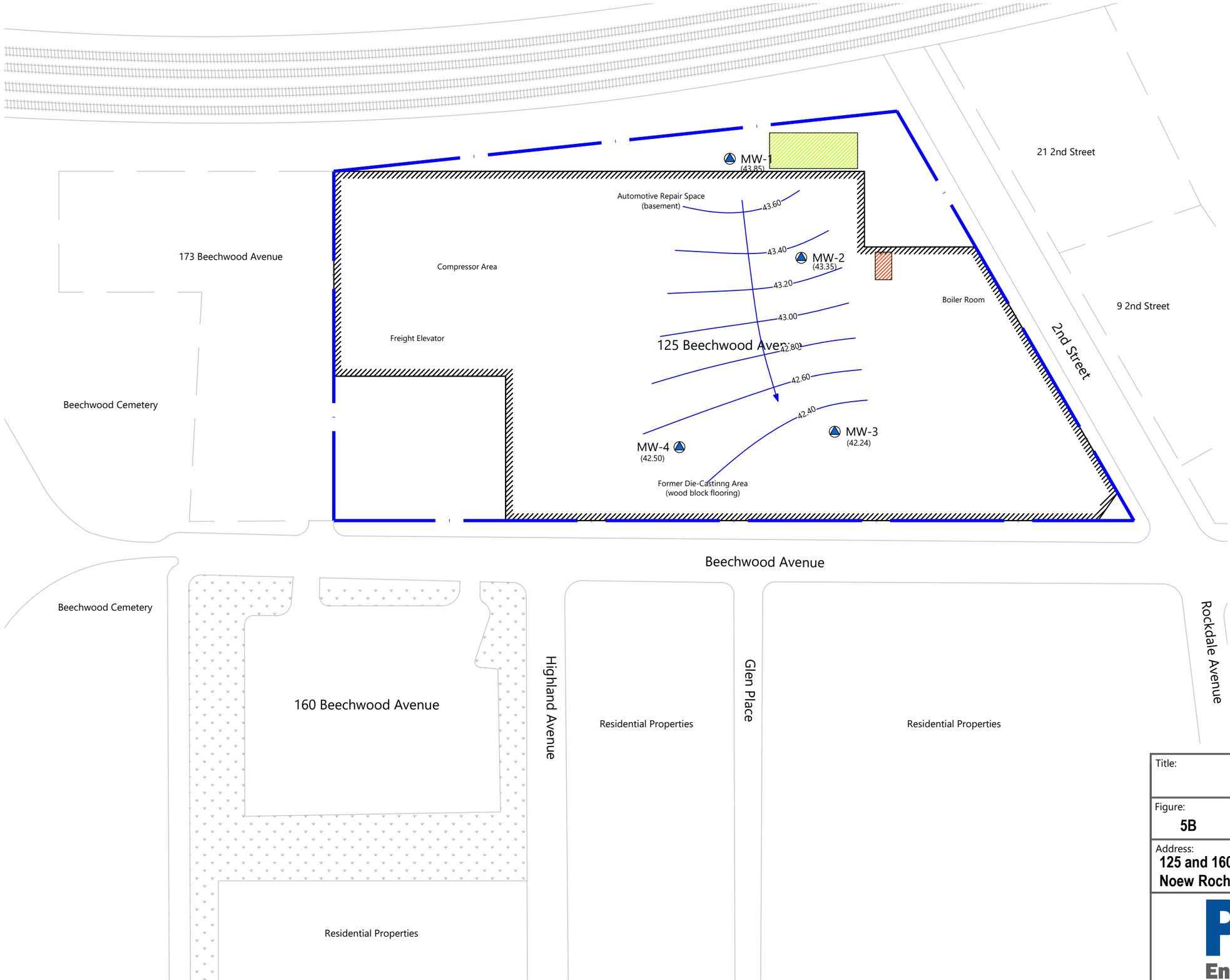
N

35' 0' 35' 70'

Approximate Scale

Title: **Groundwater Contour Map**			
Figure: **5A**	Prepared By: **AS**	Date: **November 2021**	Project Number: **21393176-EN**
Address: **125 and 160 Beechwood Avenue Noew Rochelle, New York 10801**			

PARTNER
Engineering and Science, Inc.



Legend and Notes:

- Site Boundary
- Approximate Location of Abandoned 10,000-gallon Fuel Oil UST
- Approximate Location of Former Gasoline USTs
- Monitoring Well Location
- 43.00 Water Level Contour (FT AMSL)
- Horizontal Direction of Groundwater Flow

- UST = Underground Storage Tank
- Wells Gauged on February 2, 2022
- Elevations and Contours in Feet Above Mean Sea Level (FT AMSL)
- Contour Interval = 0.2 FT

N

35' 0' 35' 70'

Approximate Scale

Title: **Groundwater Contour Map**			
Figure: **5B**	Prepared By: **AS**	Date: **February 2022**	Project Number: **21393176-EN**
Address: **125 and 160 Beechwood Avenue Noew Rochelle, New York 10801**			

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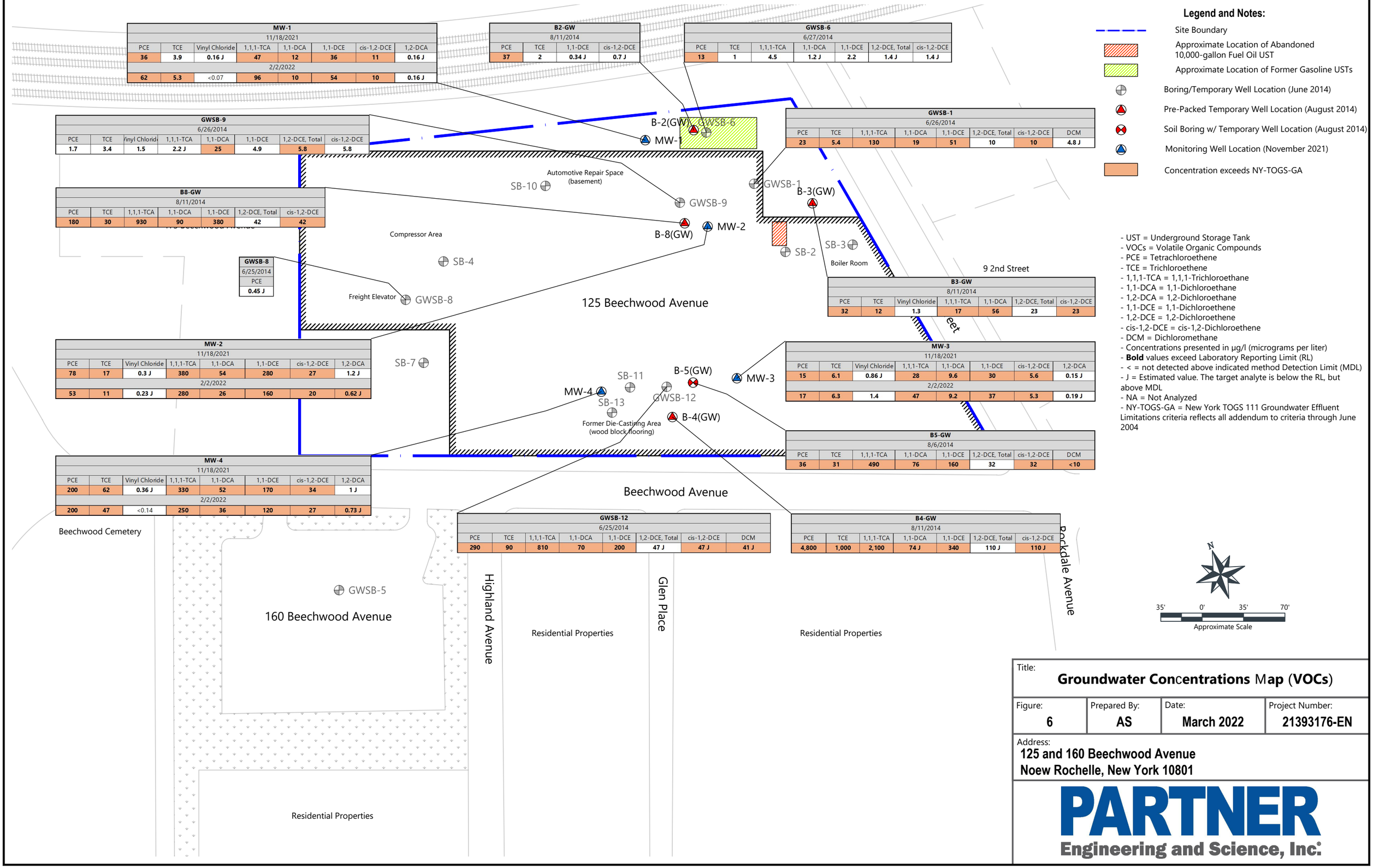
MW-1
11/18/2021
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | cis-1,2-DCE | 1,2-DCA
36 | 3.9 | 0.16 J | 47 | 12 | 36 | 11 | 0.16 J
2/2/2022
62 | 5.3 | <0.07 | 96 | 10 | 54 | 10 | 0.16 J
B2-GW
8/11/2014
PCE | TCE | 1,1-DCE | cis-1,2-DCE
37 | 2 | 0.34 J | 0.7 J
GWSB-6
6/27/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE
13 | 1 | 4.5 | 1.2 J | 2.2 | 1.4 J | 1.4 J
GWSB-9
6/26/2014
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE
1.7 | 3.4 | 1.5 | 2.2 J | 25 | 4.9 | 5.8 | 5.8
GWSB-1
6/26/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE | DCM
23 | 5.4 | 130 | 19 | 51 | 10 | 10 | 4.8 J
B8-GW
8/11/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE
180 | 30 | 930 | 90 | 380 | 42 | 42
GWSB-8
6/25/2014
PCE
0.45 J
B3-GW
8/11/2014
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCA | 1,2-DCE, Total | cis-1,2-DCE
32 | 12 | 1.3 | 17 | 56 | 23 | 23
MW-2
11/18/2021
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCE | cis-1,2-DCE | 1,2-DCA
78 | 17 | 0.3 J | 380 | 54 | 280 | 27 | 1.2 J
2/2/2022
53 | 11 | 0.23 J | 280 | 26 | 160 | 20 | 0.62 J
MW-3
11/18/2021
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | cis-1,2-DCE | 1,2-DCA
15 | 6.1 | 0.86 J | 28 | 9.6 | 30 | 5.6 | 0.15 J
2/2/2022
17 | 6.3 | 1.4 | 47 | 9.2 | 37 | 5.3 | 0.19 J
B5-GW
8/6/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE | DCM
36 | 31 | 490 | 76 | 160 | 32 | 32 | <10
MW-4
11/18/2021
PCE | TCE | Vinyl Chloride | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | cis-1,2-DCE | 1,2-DCA
200 | 62 | 0.36 J | 330 | 52 | 170 | 34 | 1 J
2/2/2022
200 | 47 | <0.14 | 250 | 36 | 120 | 27 | 0.73 J
GWSB-12
6/25/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE | DCM
290 | 90 | 810 | 70 | 200 | 47 J | 47 J | 41 J
B4-GW
8/11/2014
PCE | TCE | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | 1,2-DCE, Total | cis-1,2-DCE
4,800 | 1,000 | 2,100 | 74 J | 340 | 110 J | 110 J
B-2(GW)
GWSB-6
MW-1
GWSB-1
B-3(GW)
GWSB-9
MW-2
B-8(GW)
SB-10
Automotive Repair Space (basement)
Compressor Area
SB-4
SB-2
SB-3
Boiler Room
Freight Elevator
GWSB-8
125 Beechwood Avenue
9 2nd Street
eet
SB-7
SB-11
B-5(GW)
MW-3
MW-4
GWSB-12
SB-13
B-4(GW)
Former Die-Casting Area (wood block flooring)
Beechwood Avenue
Beechwood Cemetery
GWSB-5
160 Beechwood Avenue
Highland Avenue
Glen Place
Residential Properties
Residential Properties
Rockdale Avenue
Legend and Notes:
Site Boundary
Approximate Location of Abandoned 10,000-gallon Fuel Oil UST
Approximate Location of Former Gasoline USTs
Boring/Temporary Well Location (June 2014)
Pre-Packed Temporary Well Location (August 2014)
Soil Boring w/ Temporary Well Location (August 2014)
Monitoring Well Location (November 2021)
Concentration exceeds NY-TOGS-GA
- UST = Underground Storage Tank
- VOCs = Volatile Organic Compounds
- PCE = Tetrachloroethene
- TCE = Trichloroethene
- 1,1,1-TCA = 1,1,1-Trichloroethane
- 1,1-DCA = 1,1-Dichloroethane
- 1,2-DCA = 1,2-Dichloroethane
- 1,1-DCE = 1,1-Dichloroethene
- 1,2-DCE = 1,2-Dichloroethene
- cis-1,2-DCE = cis-1,2-Dichloroethene
- DCM = Dichloromethane
- Concentrations presented in µg/l (micrograms per liter)
- Bold values exceed Laboratory Reporting Limit (RL)
- < = not detected above indicated method Detection Limit (MDL)
- J = Estimated value. The target analyte is below the RL, but above MDL
- NA = Not Analyzed
- NY-TOGS-GA = New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004
N
35' 0' 35' 70'
Approximate Scale
Title: Groundwater Concentrations Map (VOCs)
Figure: 6
Prepared By: AS
Date: March 2022
Project Number: 21393176-EN
Address: 125 and 160 Beechwood Avenue Noew Rochelle, New York 10801
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B2-GW				
8/11/2014				
Benzo(a)pyrene	Benzo(b)fluoranthene	Fluoranthene	Indeno(1,2,3-cd)Pyrene	Pyrene
0.1 J	**0.07 J**	**0.08 J**	**0.14 J**	**0.07 J**

GWSB-6							
6/27/2014							
Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Indeno(1,2,3-cd)Pyrene	Phenanthrene	Pyrene
0.12 J	**0.12 J**	**0.18 J**	**0.14 J**	**0.34**	**0.1 J**	**0.18 J**	**0.28**

GWSB-1
6/26/2014
Naphthalene
0.16 J

GWSB-9
6/26/2014
Phenanthrene
0.11 J

GWSB-8		
6/25/2014		
Fluoranthene	Phenanthrene	
0.07 J	**0.11 J**	

B5-GW				
8/6/2014				
Acenaphthene	Fluoranthene	Naphthalene	Phenanthrene	Pyrene
0.07 J	**0.17 J**	**0.13 J**	**0.34**	**0.12 J**

GWSB-12							
6/25/2014							
Acenaphthene	Benzo(a)anthracene	Chrysene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
0.14 J	**0.1 J**	**0.12 J**	**2**	**0.1 J**	**0.12 J**	**3.1**	**1.3**

B4-GW					
8/11/2014					
Acenaphthene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
0.11 J	**0.11 J**	**0.09 J**	**0.2**	**0.37**	**0.07 J**

Legend and Notes:

- Site Boundary
- Approximate Location of Abandoned 10,000-gallon Fuel Oil UST
- Approximate Location of Former Gasoline USTs
- Boring / Temporary Well Location (June 2014)
- Pre-Packed Temporary Well Location (August 2014)
- Soil Boring w/ Temporary Well Location (August 2014)
- Concentration exceeds NY-TOGS-GA

- UST = Underground Storage Tank
- SVOCs = Semivolatile Organic Compounds
- Concentrations presented in µg/l (micrograms per liter)
- **Bold** values exceed Laboratory Reporting Limit (RL)
- < = not detected above indicated method Detection Limit (MDL)
- J = Estimated value. The target analyte is below the RL, but above MDL
- NY-TOGS-GA = New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004

B-2(GW)
GWSB-6
GWSB-1
B-3(GW)
Automotive Repair Space (basement)
SB-10
GWSB-9
B-8(GW)
173 Beechwood Avenue
Compressor Area
SB-4
SB-2
SB-3
Boiler Room
9 2nd Street
2nd Street
Freight Elevator
GWSB-8
125 Beechwood Avenue
Beechwood Cemetery
SB-7
SB-11
B-5(GW)
GWSB-12
SB-13
B-4(GW)
Former Die-Casting Area (wood block flooring)
Beechwood Avenue
Beechwood Cemetery
GWSB-5
160 Beechwood Avenue
Highland Avenue
Residential Properties
Glen Place
Residential Properties
Rockdale Avenue

N

35' 0' 35' 70'

Approximate Scale

Title:

Groundwater Concentrations Map (SVOCs)

Figure:	Prepared By:	Date:	Project Number:
7	AS	March 2022	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

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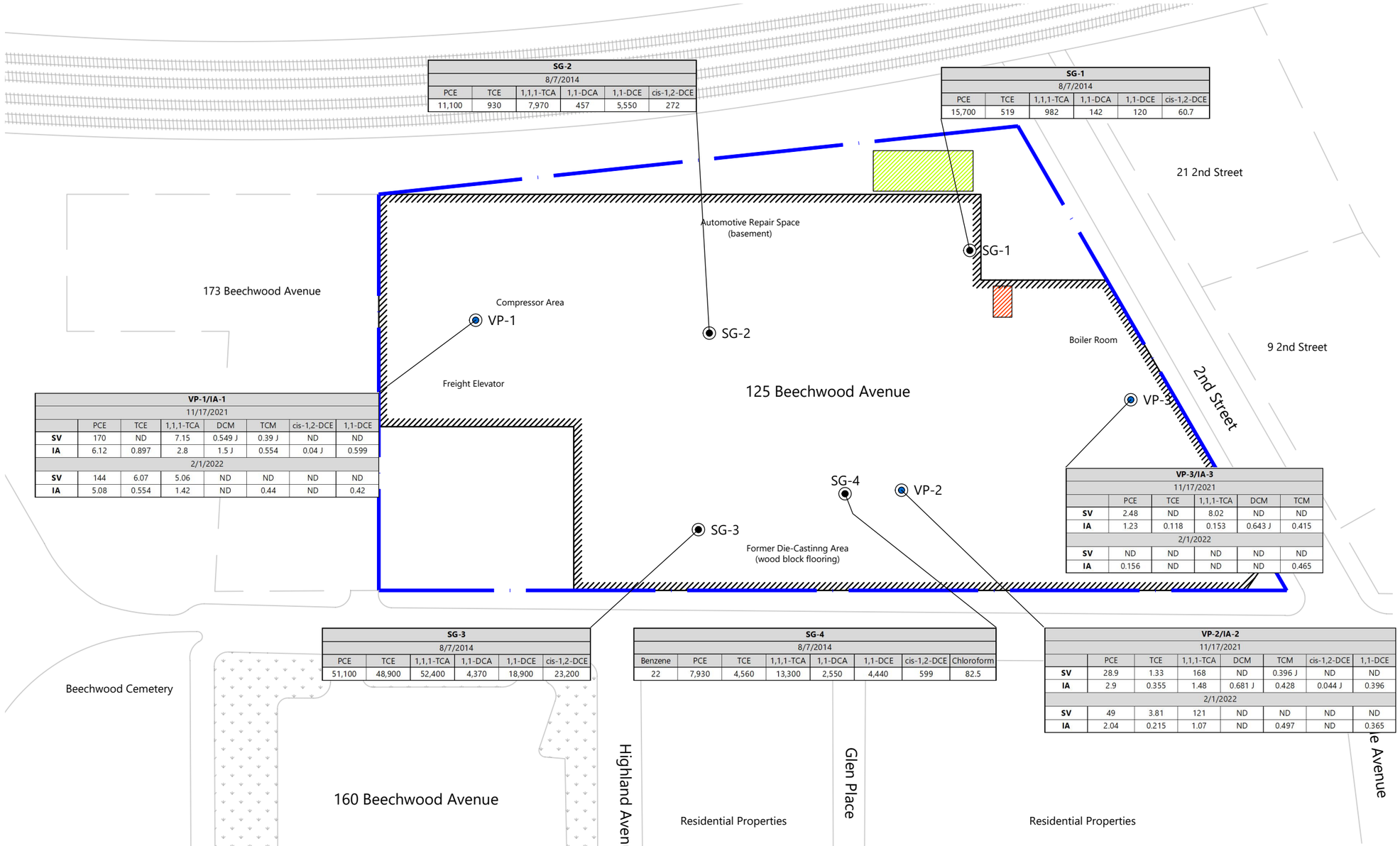

Title: **Soil Vapor / Indoor Air Concentrations Map**

Figure:	Prepared By:	Date:	Project Number:
8	AS	March 2022	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

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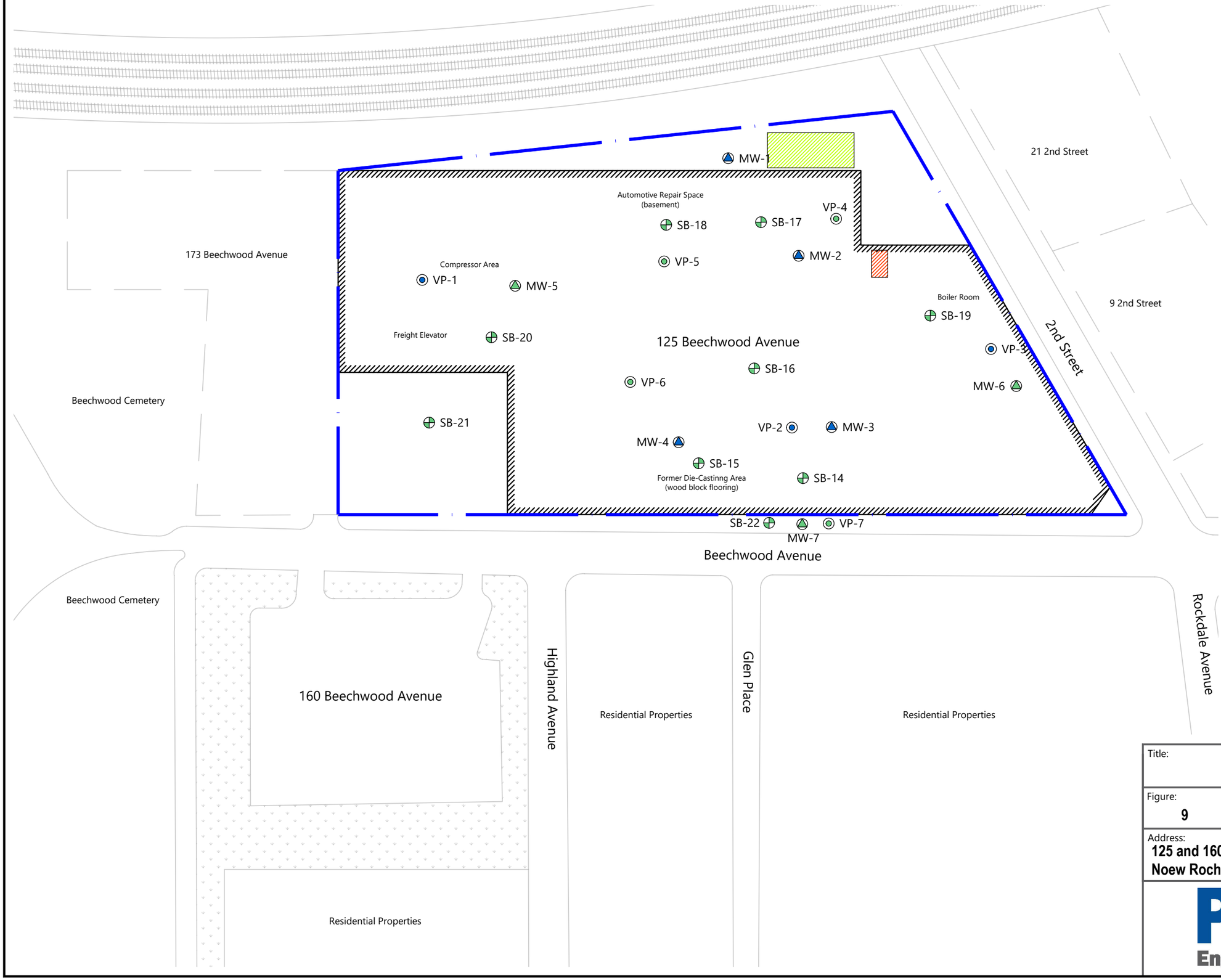

Title: **Proposed Sample Location Map**

Figure:	Prepared By:	Date:	Project Number:
9	AS	January 2023	21393176-EN

Address:
125 and 160 Beechwood Avenue
Noew Rochelle, New York 10801

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APPENDIX A: QUALITY ASSURANCE PROJECT PLAN (QAPP)

PSG

Appendix A
Quality Assurance Project Plan

Site Identification:
125 Beechwood, LLC
125 Beechwood Avenue
New Rochelle, Westchester County, New York 10801

Introduction

This Quality Assurance Project Plan (QAPP) was prepared by PSG Engineering and Geology, D.P.C. (PSG) for 125 Beechwood, LLC, who is conducting a Remedial Investigation (RI) at the property located at 125 Beechwood Avenue in the City of New Rochelle, Westchester County, New York 10801 (the "Site").

The purpose of this QAPP is to ensure that scientific data are acquired according to established methods and procedures designed to obtain results that are objective, true, repeatable, and of known accuracy. Specifically, this QAPP provides guidance and specifications to ensure that RI activities are planned and executed in a manner consistent with the Quality Assurance Objectives (QAO's) stated below:

- Field determinations and analytical results are valid through adherence to New York State Department of Environmental Conservation (NYSDEC) field procedures, NYSDEC-approved analytical protocols, and calibration and preventive maintenance of equipment;
- Samples are identified and controlled through sample tracking systems and chain of custody procedures;
- Records are retained as documentary evidence of field activities and observations;
- Samples are collected, and analytical data are validated in accordance with the NYSDEC requirements; and
- Evaluations of the data are accurate, appropriate, and consistent throughout the project

The contents of this QAPP are based on the NYSDEC requirements as stated in the EPA Requirements for Quality Assurance Project Plans (QA/R-5) (May 2006). This QAPP includes the following components:

- Problem Definition/Background;
- Project/Task Description;
- Project/Task Organization;
- Data Quality Objectives and Criteria for Measurement Data;
- Historical and Secondary Information/Data;
- Investigative Process Design;
- Field Instrumentation/Equipment Calibration and Frequency;
- Inspection/Acceptance of Supplies and Consumables;
- Sample Handling and Custody Requirements;
- Field Storage and Transport Procedures;
- Sample Containers, Preservation, and Holding Times;
- Analytical Methods Summary Table;

- Project Compounds and Analytical Summary;
- Analytical Quality Control;
- Laboratory Deliverables;
- Data and Records Management;
- Data Verification and Usability; and
- Corrective Action Processes.

As specific conditions and additional information warrant, this QAPP will be amended or revised to include site-specific quality assurance/quality control procedures.

1. Project Definition / Background

The Site consists of one 3.17-acre property identified as Section 2, Block 691, Lot 005 and is developed with a large two-story commercial building occupied by U-Haul Moving & Storage and an asphalt-paved parking lot along the southwestern corner.

Investigations completed at the Site between 2012 and have identified chlorinated volatile organic compound (CVOC) and polycyclic aromatic hydrocarbon (PAH) impacts in groundwater and CVOC impacts in soil vapor and indoor air at the Site.

This remedial investigation is planned to define the nature and extent of all contamination within the Site and support the subsequent evaluation and development of remedial actions, as appropriate. This investigation will also determine if other compounds of concern are present at the Site.

The data shall be used to determine if further soil or groundwater investigation is required. These decisions shall be made following receipt of all analytical data associated with the investigation. Data users for the project include the person responsible for conducting the remediation, the environmental consultant, and ultimately the NYSDEC.

These findings will be summarized in a Remedial Investigation Report (RIR) that will be submitted to the NYSDEC for review and approval. Remedial Action Objectives (RAOs) will also be developed for the Site based on the contaminant characterization results, current land use, and potential exposure pathways. Based on an understanding of potential Site issues and the presence of chlorinated VOCs, the RAOs for the Site may require soil removal, groundwater treatment, and the implementation of a sub-slab depressurization system.

2. Project Summary

The work that is planned to be conducted includes a Remedial Investigation of soil, groundwater, soil vapor, and indoor air. Personnel required to conduct the remedial investigation activities include a Qualified Environmental Professional.

All of the data shall be collected through soil, groundwater, soil vapor, indoor air sampling and laboratory analysis. No data shall be collected from other sources.

The sample results shall be compared to the applicable NYSDEC Restricted Commercial Use Soil Cleanup Objectives (RCUSCOs) and the Protection of Groundwater SCOs (PGWSCOs) for soil, NYSDEC Ambient Water Quality Standards (AWQS) for groundwater, and the New York State Department of Health (NYSDOH) Soil Vapor/Indoor Air Matrices A, B, and C for indoor air and soil vapor, and a conclusion shall be made, based on the comparison, as to whether contamination exists that requires further investigation/delineation or if no further investigation is required, and remedial action can be commenced.

The anticipated project schedule from initiation to final report is included as Section 3.8 of the RIWP. The applicable regulatory quality standards are: RCUSCOs and PGWSCOs for soil, NYSDEC AWQSs for groundwater, and the NYSDOH Soil Vapor/Indoor Air Matrices A, B, and C for indoor air and soil vapor.

3. Project / Task Organization

Project Team

The Site Health and Safety Officer and Quality Assurance Coordinator for this project is Ms. Ally Hassler of PSG. She is responsible for implementing the Quality Assurance Project Plan and the Remedial Investigation in accordance with NYSDEC regulations and serves as the central point of communication with all other individuals and organizations associated with this project. Ms. Hassler can be reached at (732)-245-0365.

The Quality Assurance Officer and Project Manager for this project is Anthony Cauterucci. While Mr. Cauterucci will not be directly involved in the collection and analysis of samples from the Site, he has worked in conjunction with Ms. Hassler in the development of the sampling and analytical portion of this QAPP. He is responsible for reviewing sampling procedures and certifying that the data was collected and analyzed using the appropriate procedures. Mr. Cauterucci is familiar with analytical methods, data interpretation and validation, the development of sampling plans, quality control procedures and auditing requirements and techniques. During the course of the sampling and analytical portion of the project Mr. Cauterucci may conduct periodic field and sampling audits, interface with the analytical laboratory to resolve problems, and interface with the data validator and/or the preparer of the Data Usability Summary Report (DUSR) to resolve problems.

Laboratory Analysis: Alpha Analytical Laboratory (NY Certification #11148): 35 Whitney Rd # 5, Mahwah, NJ 07430 (Contact: Brittney Bodtke) (610) 532-5742. Special training is required to operate laboratory equipment and conduct laboratory analyses.

Special Training Needs/Certification

Training needs and certifications of field oversight include requirements to have completed the OSHA 40- Hour training with annual 8-hour refresher training in accordance with 29 CFR 1910.120 (Hazardous waste operations and emergency response).

4. Data Quality Objectives and Criteria for Measurement Data

Data quality objectives ("DQOs") are qualitative and quantitative statements that are developed in the first six (6) steps of the DQO process. DQOs define the purpose of the data collection effort, clarify what the data should represent to satisfy this purpose, and specify the performance requirements for the quality of information to be obtained from the data.

The development of the data quality criteria can be developed through the formal DQO process described in the EPA document titled "Guidance for the Data Quality Objectives Process'', EPA/600/R-96/055. For most projects, however, a less iterative process is normally used to develop the project specific DQOs.

Data of Known Quality Protocols ("DKQP") describe specific laboratory quality assurance and quality control procedures which, if followed, will provide data of known and documented quality (i.e. scientific reproducible and reliable data). When data of known quality ("DKQ") is obtained, an evaluation of the data with respect to its intended purpose can be made. To this end, a NY-certified laboratory must be used to analyze samples whenever possible.

Typical DQOs are often expressed in terms of data quality indicators ("DQIs") including precision, accuracy, representativeness, comparability, completeness and sensitivity (also known as the "PARCCS" parameters). These measures of performance are discussed in detail below.

Precision

Precision is the measure of agreement among repeated measurements of the same property under identical or substantially similar testing conditions. The investigator will determine the precision of the data by:

- Using the same analytical methods to perform repeated analyses on the same sample (laboratory or matrix duplicates);
- Collection of a field duplicate and submittal of both to evaluate the precision from sample collection, for sample handling, preservation and storage and analytical measurements

Precision for laboratory and field measurements can be expressed as the relative percent difference ("RPD") between two duplicate determinations or percent relative standard deviation ("%RSD") between multiple determinations.

Acceptance criteria for field precision shall be assessed through the splitting of a sample in the field and submitting both to the laboratory. Field duplicates will be collected at a frequency of one (1) per twenty (20) investigative samples per matrix per analytical parameter. Precision will be measured through the calculation of RPD. The resulting information will be used to assess sample homogeneity, spatial variability at the site, sample collection reproducibility, and analytical

variability.

Accuracy

Accuracy is the degree of agreement of a measured value and an accepted reference or true value. The difference between the measured value and the reference or true value includes components of both systematic error (bias) and random error (precision). It should be noted that precise data may not be accurate data. Accuracy can be expressed as a percent recovery or percent deviation of the measurement with respect to its known or true value.

The accuracy will be determined through establishing acceptance criteria for spike recoveries (e.g., surrogate recoveries, laboratory control sample recoveries, matrix spike recoveries, reference material recoveries etc.) or allowable deviations for calibration (e.g., % RPD for calibration verification). Acceptance criteria for matrix spike measurements are expressed as a percent recovery and are usually specified in the analytical method (or laboratory SOP, as applicable). Various blank samples (laboratory or field) may also be used to assess contamination of samples that may bias results high. Accuracy in the field shall be assessed through the adherence to sample collection, handling, preservation, and holding time requirements.

Representativeness

Representativeness is a qualitative measurement that describes the extent to which analytical data represent the site conditions. In almost every project, the investigator will not be able to measure the whole system, process, or situation of interest. Instead, the investigator will choose sample locations, quantities, and analyses in order to capture a sufficiently broad and/or weighted view of the situation.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times. Following the detailed requirements outlined in the EPA methods and the laboratory SOPs will maximize the representativeness of the laboratory data.

Comparability

Comparability is a qualitative term that expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Comparability is defined as the extent to which data from one data set can be compared directly to similar or related data sets and/or decision-making standards.

Historical data should be evaluated to determine whether they may be combined with data being collected in present time. Comparability should discuss comparisons of sample collection and handling methods, sample preparation, and analytical procedures, holding times, stability issues and QA protocol.

Comparability in the laboratory is dependent on the use of recognized methods and approved laboratory SOPs. Comparability in the field is dependent upon adherence to the sampling

methodology and that the proper preservation techniques are used.

Completeness

Completeness is a measure of the amount of usable data collected compared to the amount of data expected to be obtained. Three measures of completeness are defined as:

- Sampling completeness, defined as the number of valid samples collected relative to the number of samples planned for collection;
- Analytical completeness, defined as the number of valid sample measurements relative to the number of valid samples collected; and
- Overall completeness, defined as the number of valid sample measurements relative to the number of samples planned for collection.

Sensitivity

Sensitivity refers to the ability of an analytical procedure to quantify an analyte at a given concentration. The sensitivity requirements should be established such that the laboratory method Reporting Limits ("RLs") are at or below the relevant and applicable regulatory limits for each Contaminant of Concern ("COC") for the project. For the purpose of this project:

- The RL for a specific substance when determining the extent and degree of polluted soil from a release. For the purpose of this document, the RL is defined as:
  - Organics, the lowest initial calibration standard as adjusted for the dilution factor, sample weight/volume, and moisture content;
  - Inorganics, the concentration of that analyte in the lowest level check standard (which could be the lowest calibration standard in a multi-point calibration curve).

Methods for analysis have been chosen to meet the sensitivity requirements for a project (e.g., compound- specific and matrix-specific). If however, the laboratory RLs exceed the project sensitivity requirements (i.e., the RL is above the relevant and applicable regulatory standard), the analytical methods may need to be adjusted (e.g., analysis conducted using a more sensitive method or sample preparation and analysis features adjusted to gain sensitivity) and/or the project objectives may need to be adjusted (i.e., certain COCs may not be able to be screened out during this phase of the evaluation).

Due to the low regulatory limits, it will be ensured that laboratory reporting limits for PFAS in groundwater and soil are to be 2 nanograms per liter (ng/L) (ppt) and 1 microgram per kilogram (ug/kg) (ppb), respectively.

The method detection limit for 1,4-dioxane in groundwater and soil will not exceed 0.35 micrograms per liter (ug/L) and 0.1 milligram per kilogram (mg/kg) in soil.

5. Historical and Secondary Information / Data

The potential sources of data for any project include both historical data (i.e., data not collected by the current investigator) and secondary data (i.e., data that were collected for a different purpose than that for which they are now being used). Historical data should be evaluated for

applicability to current project objectives. Secondary data should be assessed to determine if the quality of the data is sufficient for the current project objectives and meets comparability criteria (it is not sufficient that the secondary data were produced by a reliable source or a known environmental monitoring project with an approved QAPP).

Historical data and secondary data are not known to exist in association with the media being investigated at the current Site.

6. Investigation Process Design

A description and justification of the investigation design should include, for each area of interest:

- The COCs or other parameters of interest
- The number of anticipated investigation points and how and why they will be selected including a site map depicting proposed sample locations
- Method of obtaining/determining locational information (such as the use of GPS instrumentation)
- Factors which could affect the variability of the data such as physical obstructions, seasonal variations, tidal influences, soil profile changes, weather-related variation, and process variation within the source
- Design basis (i.e., probability based or judgment based)
- Results comparison (i.e., versus previous data, regulatory standards, reference population, etc.) Matrices to be monitored including any special sampling requirements
- Monitoring frequency (if applicable)
- Heterogeneity or homogeneity of the matrix
- Appropriateness of composite samples
- Required quality control samples

The investigative process design is based generally on the following:

- NYSDEC DER-10 / Technical Guidance for Site Investigation and Remediation
- Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) with updates

7. Field Quality Control

Field quality control activities, along with their frequency, acceptance criteria, and corrective actions to be taken are provided for each DQI in the following tables.

Analyte(s)	DQI	Data Quality Element	Frequency of Collection	Acceptance Criteria	Corrective Action(s)
-VOCs+TICs per Method 8260C -SVOCs+TICs by Method 8270D -TAL Metals by EPA 200.7 / 200.8/ 245.2 / 6010C / 6020A / 7470A / 7471B -TCL PCBs and Pesticides by Method 8082A/8081B -1,4-Dioxane by EPA Method 8270D-SIM -PFAS by EPA Method 1633	Sensitivity	Samples reported to RL	For each target analyte	Analyte specific	Qualify sample data
-VOCs+TICs per Method 8260C -SVOCs+TICs by Method 8270D -TAL Metals by EPA 200.7 / 200.8/ 245.2 / 6010C / 6020A / 7470A / 7471B -TCL PCBs and Pesticides by Method 8082A/8081B -1,4-Dioxane by EPA Method 8270D-SIM - PFAS by EPA Method 1633	Accuracy	Laboratory Control Samples (LCS)	One (1) per preparatory batch of 20 samples	Analyte specific	Reanalyze all samples in the batch
-VOCs+TICs per Method 8260C -SVOCs+TICs by Method 8270D -TAL Metals by EPA 200.7 / 200.8/ 245.2 / 6010C / 6020A / 7470A / 7471B -TCL PCBs and Pesticides by Method 8082A/8081B -1,4-Dioxane by EPA Method 8270D-SIM - PFAS by EPA Method 1633	Precision	Laboratory Duplicates	One (1) per preparatory batch of 20 samples	RPD≤ 25%	Qualify sample data

-VOCs+TICs per Method 8260C -SVOCs+TICs by Method 8270D -TAL Metals by EPA 200.7 / 200.8/ 245.2 / 6010C / 6020A / 7470A / 7471B -TCL PCBs and Pesticides by Method 8082A/8081B -1,4-Dioxane by EPA Method 8270D-SIM - PFAS by EPA Method 1633	Accuracy	Method Blanks	One (1) per preparatory batch of 20 samples	No target analytes concentrations ≥ RL	Investigate the source of contamination and document and reanalyze all samples processed
-VOCs per Method TO-15	Accuracy and precision	Leak Check	Every soil vapor sample	<10% helium in sample probe	Purge tubing and reseal annular space at surface

* Target Compound List (TCL) VOCs, including Tentatively Identified Compounds (TICs); Semi-volatile organic compounds; Target Analyte List (TAL) Metals; Polychlorinated Biphenyls (PCBs); Per- and Polyfluoroalkyl substances (PFAS).

Equipment to be decontaminated during the project may include tools, monitoring equipment, and sample collection equipment.

Contaminated tools and sampling equipment will be dropped into a plastic pail, tub or other container. The tools will be brushed off, rinsed, and transferred into a second pail to be carried to further decontamination stations where they will be washed with a non-PFAS containing detergent and water solution, rinsed with clean potable water, and finally rinsed with deionized water.

Any direct or obvious contamination on monitoring equipment will be brushed or wiped with a disposable paper wipe. The units will then be wiped off with damp disposable wipes and dried. The units will be checked, standardized, and recharged, as necessary, for the next day's operation. They will then be prepared with new protective coverings.

Sample containers will be wiped clean at the sample site, taken to the decontamination area to be further cleaned, as necessary, and transferred to a clean carrier. The samples will be checked off against the COC record. The samples will then be stored on ice in a secure area prior to shipment. Sample handling areas will be cleaned/wiped down daily using disposable wipes. Disposable wipes will not be used on any equipment that comes in contact with samples. For final cleanup, all equipment will be disassembled and decontaminated. Any equipment which cannot be satisfactorily decontaminated will be disposed (e.g., glassware, covers for

surfaces).

Analysis of an equipment/field blank sample shall be conducted for the COCs being investigated that day with that equipment.

Due to the ubiquitous nature and low detection levels for PFAS compounds, several additional specific considerations and protocols must be taken during project setup, sampling, and decontamination procedures when sampling for PFAS compounds as follows:

- PFAS sampling will occur at the beginning of the work day prior to any other sampling planned, to avoid possible contamination sources.
- Clothing for the day must have been previously washed a minimum of 6 times (i.e. no new clothing) without fabric softener.
- No waterproof, water-repellent, fire-repellant or stain-resistant clothing or footwear will be worn.
- On the day of sampling the project manager will shower only with PFAS-free soap and shampoo, brush teeth with fluoride-free toothpaste only (no mouthwash or dental floss), and will not use lotions, moisturizers, deodorant cosmetics, makeup sunscreen or insect repellents.
- Prior to sampling the project manager will not handle any packaged food or drinks, aluminum foil, adhesive labels, etc. at or around sampling site.
- Sampling bottles will be pre-labeled before arrival at the sampling site and marked with a ball-point pen only (no markers).
- No waterproof logbooks or plastic clipboards will be used, only untreated paper and aluminum clipboards.
- Prior to collection of samples, field personnel must wash their hands and wear a new set of powderless, disposable, nitrile gloves and will take extra caution not to touch any surface prior to sample collection.
- High density polyethylene (HDPE) and polypropylene will be used during sampling and all sampling equipment components and sample containers will not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.
- Samples will be collected directly into the provided preserved, HDPE bottle, which will be sealed and bagged immediately and will be stored and transported in a clean, dedicated cooler between bags of PFAS-free, fresh, bagged ice (no chemical ice packs will be used).
- Field sampling equipment, including oil/water interface meters, water level indicators, and other nondedicated equipment used at each sample location, will be cleaned between use.
- The safety data sheets (SDSs) of detergents or soaps used in decontamination procedures will be reviewed to ensure fluoro-surfactants are not listed as ingredients.
- Laboratory-certified PFAS-free water will be used for the final rinse during decontamination of sampling equipment.
- Larger equipment (for example, drill rigs and large downhole drilling and sampling

equipment) will be decontaminated with potable water using a high-pressure washer or steam.

- To the extent practical, equipment coming in direct contact with samples will be rinsed with PFAS-free water. Water used for the decontamination of sampling equipment will be laboratory certified "PFAS-free" water.

8. Sampling Methods and Techniques

Soil Borings and Samples

Soil borings will be completed in nine (9) locations in the subsurface as per DER-10 Section 3.5.2. Soil sampling locations will be determined with consideration to soil type, depth, and data gathered from previous investigations and are planned to be completed at locations throughout the Site as illustrated on Figure 9. The borings will be advanced to a target depth of 20 feet bgs or refusal due to bedrock using a direct-push probe drill rig. Soil samples will be field screened by PSG personnel for evidence of contamination (e.g., odors, staining, etc.) and screened for the presence of VOCs with a calibrated photo ionization detector (PID).

At all soil boring locations, one shallow soil sample will be collected for analysis from grade to 2 feet bgs and a second soil sample will be collected for analysis at the interval with the highest likelihood for contamination based on field screening results, or from boring terminus if no indication of impacts are observed.

Soil samples slated for laboratory analysis will be labeled and placed in laboratory-supplied containers and shipped via courier with chain-of-custody (COC) documentation, in accordance with appropriate EPA protocols, to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Soil samples will be analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, PCBs by EPA Method 8082, pesticides by EPA Method 8081, Target Analyte List (TAL) metals by EPA Method 6000/7000 series, hexavalent chromium by EPA Method 7196A, 1,4-dioxane by EPA Method 8270, and Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) compounds by EPA Method 1633. Sampling for emerging contaminants will be conducted in accordance with the November 2022 NYSDEC-issued sampling protocol ("Sampling, Analysis, and Assessment of PFAS"). Appropriate quality assurance/quality control (QA/QC) samples will be collected for the soil sampling event including one trip blank, one field duplicate sample, one matrix spike sample, and one matrix spike duplicate.

Monitoring Well Installation and Groundwater Sampling

There are currently four (4) existing groundwater monitoring wells located at the Site (MW-1 through MW-4).

Four (4) additional 2-inch diameter permanent groundwater monitoring well (identified as MW-5 through MW-8) will be installed by a NY-licensed well driller. The additional wells will be installed at the locations illustrated on Figure 9.

The additional permanent groundwater monitoring wells will be installed to 20 feet bgs or refusal due to bedrock. As groundwater at the Site has been detected between 8 and 13 feet below the top of casing (TOC) in the four (4) permanent monitoring wells on-site to date, a 15-foot long section of PVC screen will be set at the base of the well from approximately 20 feet bgs to 5 feet bgs in order to straddle the groundwater interface. Solid-walled PVC casing will extend from 5 feet bgs to ground surface. A silica sand pack will be placed from the base of the borehole to between one feet and two feet above the top of the well screen, using media appropriately sized based on Site-specific geologic conditions (tentatively 0.010-slot screen and 20-40 silica sand). No other groundwater units have been encountered at this Site in the overburden formation and therefore only the shallow groundwater unit identified between 8 and 20 feet bgs will be evaluated at this time.

The annular space of the well will be sealed to ground surface using cement-bentonite grout. The top of the well installed will be finished with a lockable, water-tight cap and flush-mount steel cover. The newly installed monitoring well will be developed by purging and/or pumping the water in the well to loosen and remove suspended fines. Measurements of the water volume removed and water quality parameters including temperature, pH, conductivity, and turbidity will be recorded at regular intervals throughout the development process. Development will continue until the NYSDEC standard of 50 Nephelometric Turbidity Unit (NTU) is measured with a nephelometer and water is visibly free of sediment. The top of the PVC casing for the new well will be surveyed by a NY-licensed surveyor and depth to groundwater measurements will be recorded in the well.

After allowing the newly installed well to equilibrate for approximately one (1) week following installation and development, the wells will be sampled as described below.

Groundwater samples will be collected from the eight (8) groundwater monitoring wells. Prior to sampling, an electronic interface meter will be used to measure water levels and the water column will be purged used low-flow procedures. The purge water will be monitoring for field parameters including pH, oxidation-reduction potential (ORP), specific conductivity, dissolved oxygen, temperature, and depth to water for approximately 30 to 60 minutes or until stabilized.

Groundwater samples slated for laboratory analysis will be placed in laboratory-supplied containers and shipped in accordance with appropriate EPA protocols to a NYSDOH ELAP-certified laboratory. The samples will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, PCBs by EPA Method 8082, pesticides by EPA Method 8081, and total and dissolved TAL metals by EPA Method 6000/7000 series and PFAS compounds by EPA Method 1633 and 1,4-dioxane by EPA Method 8270. Sampling for emerging contaminants will be conducted in accordance with the November 2022 NYSDEC-issued sampling protocol ("Sampling, Analysis, and Assessment of PFAS"), with the exception that a low-density polyethylene (LDPE) bladder will be used as no industry-approved high-density polyethylene (HDPE) alternative currently exists. Appropriate QA/QC samples will be collected for the groundwater sampling event including one trip blank, one field duplicate sample, one matrix spike sample, and one matrix spike duplicate sample per day of sampling. Well sampling details will be noted on groundwater sampling logs, which will be included as an appendix to the Remedial Investigation Report (RIR).

Soil Vapor Sampling

Prior to completing the soil sampling and groundwater monitoring well installation described in Sections 3.3 and 3.4, six (6) interior sub-slab soil vapor samples and one (1) exterior soil vapor sample will be collected at the locations illustrated on Figure 9. Soil vapor sampling will be conducted in accordance with Section 2.7.1 of the New York State SVI Guidance and DER-10 Section 3.6. There are currently three (3) permanent soil vapor probes installed within the interior of the Site (VP-1 through VP-3); therefore, these three (3) soil vapor probes will be samples and an additional four (4) soil vapor probes will be installed. The interior soil vapor samples will be collected from approximately 2 feet bgs in Summa canisters which have been certified clean by the laboratory. The exterior soil vapor sample will be collected by advancing a borehole to approximately five (5) feet bgs, inserting an implant connected to Teflon-lined tube, filling the annular space with sand, and sealing off the surface area where the tubing meets the ground surface with hydrated granular bentonite.

Soil vapor samples will be analyzed by using USEPA Method TO-15. Flow rate of both purging and sampling will not exceed 0.2 liter per minute (L/min) for soil vapor and sub-slab soil vapor sampling. Soil vapor sampling will occur for the duration of eight hours. A sample log sheet will be 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, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor evaluation, a tracer gas will be used in accordance with NYSDOH protocols to serve as a QA/QC device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a shroud will serve to keep it in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence (>10% of the tracer as outlined in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, with revisions October 2006) of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

Indoor/Ambient Air Sampling

A total of seven (7) air samples will be collected at the Site. Six (6) of the samples will be collected from locations within the building that are collocated with the sub-slab vapor sample locations, and one (1) of the samples will be an ambient/background air sample collected outside of the building. The air samples will be collected concurrently with the interior sub-slab soil vapor samples at the locations proposed on Figure 9. The air samples will be collected over a period of approximately eight-hours per NYSDOH Vapor Intrusion (VI) Guidance Manual requirements for non-residential buildings. The air samples will be collected using laboratory-supplied six (6) liter evacuated Summa canisters with calibrated flow controllers.

A sample log sheet will be 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, apparent moisture content of the sampling zone, and chain of custody protocols.

The air samples will be analyzed for VOCs using EPA method TO-15.

9. Field Instrumentation / Equipment Calibration and Frequency

Field instrumentation/equipment that will require calibration includes a PID, a peristaltic pump, a U-50 Multiparameter Water Quality Meter and flow through cell, a helium detector, and flow regulators for Summa canisters. Calibration of PID will be conducted using isobutylene gas at the beginning at each day of field work. The U-50 Multiparameter Water Quality Meter calibration record will be provided by Pine Environmental Services, Inc. upon request. Alpha Laboratory will provide all calibration records on the flow regulators and the helium detector calibration record will be provided by Pine Environmental Services, Inc. upon request

10. Inspection / Acceptance of Supplies and Consumables

Critical supplies or consumables are planned for use in soil, groundwater, soil vapor, and indoor air sampling events. All consumables must be unused and dedicated specifically to this project. The soil and groundwater samples will be collected into laboratory-supplied bottleware. The soil vapor and indoor air samples will be collected into laboratory-supplied Summa canisters. Summa canisters shall be batch certified as clean from the laboratory.

11. Sample Handling and Custody Requirements

Sample containers will be wiped clean at the sample site, taken to the decontamination area to be further cleaned, as necessary, and transferred to a clean carrier. The samples will be checked off against the chain of custody (COC) record. The samples will then be stored on ice in a secure area prior to shipment. At the time samples are obtained, the following must be recorded by the sampler in the field logbook and/or on sample data sheets: Sample location

- Sample type
- Date and time of sampling
- Project and sample designations
- Sample identification
- Analyses requested

Sample handling areas will be cleaned/wiped down daily using disposable wipes. Disposable wipes will not be used on any equipment that comes in contact with samples. For final cleanup, all equipment will be disassembled and decontaminated. Any equipment which cannot be satisfactorily decontaminated will be disposed (e.g., glassware, covers for surfaces). Samples shall be maintained on-site for no more than two (2) consecutive days and shall be delivered to the laboratory within one (1) day of shipment from the field.

The following COC protocol will be followed by the sampling crews:

- Documenting procedures and reagents added to the sample during sample preservation
- Recording sampling locations, sample bottle identification, and specific sample collection procedures on the appropriate forms
- Using sample labels that contain all information necessary for effective sample tracking
- Completing standard field data records to establish analytical sample custody in the field before sample shipment.

Prepared labels are normally developed for each sample to be collected. Each label is numbered to correspond with the appropriate sample(s) to be collected.

The COC record is used to document sample-handling information (i.e., sample location, sample identification, and number of containers corresponding to each sample number). The following information is recorded on the COC record:

- Project reference
- The site location code, sample identification number, date of collection, time of collection, sample bottle number, preservation, and sample type, number of containers, sample matrix
- The names of the sampler(s) and the person shipping the samples
- Serial number of custody seals and shipping cases (if applicable)
- The date and time that the samples were delivered for shipping
- Analyses required
- The names of those responsible for receiving the samples at the laboratory.

COC Forms may be obtained from the subcontractor laboratory or from PSG. A copy of the COC is sent with the analytical samples to the laboratory; another is kept by the sample crew leader and maintained in the project file. When this shipment is received by the laboratory, the COC is signed by the laboratory and returned with the test results as part of the data package submittal.

12. Field Storage and Transport Procedures

Samples shall remain in direct sight and in the custody of field personnel at all times until transfer to the laboratory.

13. Sample Containers, Preservation, and Holding Times

Sample containers, preservation, and holding times are specified on Table 1.

14. Analytical Methods Summary Table

Analytical methods are summarized on Table 1.

15. Project Compounds and Analytical Summary

CVOCs and PAHs are the COCs for the soil and groundwater at the Site and CVOCs are the COCs for soil vapor and indoor air at the Site. The project action limits are the NYSDEC RCUSCOs

and NYSDEC PGWSCOs for soil, NYSDEC AWQSs for groundwater, and NYSDOH Soil Vapor/Indoor Air Matrices A, B, and C for indoor air and soil vapor. The analytical methods chosen can meet the DQOs of the project.

Analytical sensitivity requirements include the use of instruments or methods to detect the contaminants of concern at or below the action limits. The RLs are expected to be below the applicable regulatory standards. NYSDEC and EPA methods were selected to achieve the action limits. Laboratories may need to adjust RLs based on dilutions, sample sizes, extract/digestate volumes, percent solids and cleanup procedures. Sensitivity will be maximized by following the NYSDEC and EPA methods or laboratory SOPs utilizing experienced, trained laboratory personnel and by conducting laboratory audits.

16. Analytical Quality Control

Quality assurance and quality control ("QA/QC") requirements for analysis are specified in the most recent version of the document titled "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods'', prepared by EPA. The laboratory may also have QA/QC procedures in addition to those specified by the test method.

17. Laboratory Deliverables

The laboratory deliverable format to be used for this project shall be the Analytical Services Protocols (ASP) Category B full laboratory data deliverable. The laboratory shall also generate spreadsheets of the analytical results.

18. Data and Records Management

The recording media for the project will be both paper and electronic. The project will implement proper document control procedures for both. For instance, hand-recorded data records will be taken with indelible ink, and changes to such data records will be made by drawing a single line through the error with an initial by the responsible person. The Project Manager will have ultimate responsibility for all changes to records and documents. Similar controls will be put in place for electronic records.

The Quality Assurance Coordinator shall retain all updated versions of the QAPP and be responsible for distribution of the current version of the QAPP. The Quality Assurance Coordinator/Project Manager will approve periodic updates. The Project Manager shall retain copies of all management reports, memoranda, and all correspondence between the parties identified in Section 3.

Project data shall be stored in the Project Manager's office.

19. Data Verification and Usability

The data package will be evaluated for accuracy and precision of the analytical results. A DUSR will be prepared to describe the compliance of the analyses with the analytical method protocols detailed in the NYSDEC ASP.

The DUSR will provide a determination of whether the data meets the project-specific criteria for data quality and data use. The validation effort will be completed in accordance with NYSDEC Division of Environmental Remediation DUSR guidelines.

The procedure for review (verification and usability procedures) including data assessment versus stated data quality objectives of the investigation is specified in the NYSDEC's DER-10.

The data validator for this project will be Mr. Donald C. Anne of Alpha Geoscience in Clifton Park, New York.

20. Corrective Action Processes

Corrective action in the field may be needed when the work plan is modified (i.e., number or locations of samples) or when sampling procedures and/or field analytical procedures require modification due to unexpected conditions. The corrective action may be implemented at the time the determination is made in the field or may be implemented later, depending on the circumstances. Any corrective actions taken shall be documented in the field logbook and in the technical report.

Corrective actions in the laboratory may be needed when Non-Conformances occur. The laboratory shall implement and document corrective actions in accordance with the laboratory SOP.

TABLE 1
Analytical Methods/Quality Assurance Summary Table
125 Beechwood Avenue, New Rochelle, Westchester County, New York 10801

Matrix Type	Number of Samples	Analytical Parameters	Analytical Methods	Sample Preservation	Sample Container & Volume	Permissible Holding Time
Soil	18[1]	TCL VOCs+TICs	8260C	0-6 °C	(3) Terracore samplers	48 Hours
		TCL SVOCs+TICs	8270D	0-6 °C	4 oz amber glass	14 Days[2]
		TAL Metals	6010C / 7471B	None	4 oz amber glass	180 Days (28 days for Hg)
		Total PCBs	8082A	0-6 °Core	4 oz amber glass	14 Days
		TCL Pesticides	8081B	0-6 °C	4 oz amber glass	14 Days[2]
		1,4-Dioxane	8270D	0-6 °C	4 oz amber glass	14 Days[2]
		PFAS[3]	1633	Trizma/0-6 °C	(2) 250 ml HDPE	14 Days[2]
Groundwater	8[4]	TCL VOCs+TICs	8260C	HCL	(3) 40 ml VOA amber gl.	14 days
		TCL SVOCs+TICs	8270D	0-6 °C	(2) 1000 ml amber glass	7 Days[5]
		TAL Metals (filtered and total metals)	200.7/200.8/ 245.2/6010C/ 6020A/7470A	0-6 °C HNO_3	(1) 500 ml HDPE	180 Days (28 days for Hg)
		Total PCBs	8082A	0-6 °C	(2) 1000 ml amber glass	7 Days
		TCL Pesticides	8081B	0-6 °C	(2) 500 ml HDPE	7 Days[5]
		1,4-Dioxane	8270D-SIM	0-6 °C	(2) 1000 ml amber glass	7 Days[5]
		PFAS[3]	1633	Trizma/0-6 °C	(2) 250 ml HDPE	14 Days[6]
Soil Vapor	7	VOCs	EPA TO-15	Ambient temperature	Summa Canister; 2.7-liter	30 days
Indoor/ Ambient Air	7	VOCs	EPA TO-15	Ambient temperature	Summa Canister; 6-liter	30 days

1. Includes 18 field samples for all analytes, 1 duplicate, 1 MS/MSD, 1 field blank, and 1 trip blank (duplicate, MS/MSD samples will be collected with a frequency of 1 in every 20 samples, trip blanks will be collected for VOCs at a frequency of 1 per cooler).
2. Permissible holding time for SVOCs+TICs, TCL Pesticides, 1,4-Dioxane, and PFAS in soil is 14 days to extract and 40 days to analyze.
3. Full list of PFAS will be analyzed. List of PFAS compounds to be analyzed is attached to this QAPP.
4. Includes 8 field samples all analytes, 1 duplicate, 1 MS/MSD, 1 field blank, and 1 trip blank (duplicate, MS/MSD samples will be collected with a frequency of 1 in every 20 samples, trip blanks will be collected for VOCs at a frequency of 1 per cooler and equipment blanks for PFAS will be collected at a frequency of 1 per day).
5. Permissible holding time for SVOCs+TICs, TCL Pesticides, and 1,4-Dioxane in groundwater is 7 days to extract and 40 days to analyze.
6. Permissible holding time for PFAS in groundwater is 14 days to extract and 28 days to analyze.

ATTACHMENT 1: PFAS ANALYTE LIST

Attachment 1 – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

APPENDIX B: HEALTH AND SAFETY PLAN (HASP) AND COMMUNITY AIR MONITORING PLAN (CAMP)

PSG

PARTNER
Engineering and Science, Inc.

HEALTH AND SAFETY PLAN

125 Beechwood, LLC
125 Beechwood Avenue
New Rochelle, Westchester County, New York 10801

January 10, 2023

Partner Project Number: 21396176

Prepared for:

Amerco Real Estate Company
2727 North Central Avenue
Phoenix, Arizona 85004

Engineers who understand your business

TABLE OF CONTENTS

1.0 INTRODUCTION

This Site-specific Health and Safety Plan ("HASP") has been prepared to address activities to be performed during the implementation of work ("Scope of Work") at 125 Beechwood Avenue in the City of New Rochelle, Westchester County, New York (the "Site"). Relevant portions of Occupational Safety and Health Administration ("OSHA") 29 CFR 1910.120 and 1926.62 were used as guidance while preparing this HASP.

The designated Site Health and Safety Officer ("SHSO") will be responsible for implementing the HASP. Compliance with this HASP is required of all workers who may potentially encounter fill at the Site (hereinafter referred to as "Site Workers"), including any Contractor's employees, subcontractors to the Contractor, subcontractors to the Owner's representative, and onsite workers for Partner Engineering and Science, Inc. (Partner). In the event that a Site Worker does not follow these procedures, he or she will be required to leave the Site immediately. The content of this HASP may change or undergo revisions based upon changes in the technical scope of work, the results of monitoring, and/or additional information made available to health and safety personnel. Any proposed changes must be reviewed and approved by the Corporate Safety Supervisor, and the SHSO implementing the changes to the HASP. As of the date of this HASP, Partner will be conducting all work at the Site.

Upon entering the Site, all visitors will be required to sign in and read and comply with the provisions of this HASP. In the event that a visitor does not follow these procedures, he or she will be required to leave the Site immediately.

1.1 Scope of Work

The Scope of Work will be a remedial investigation to define the nature and extent of contamination in on-site soil, groundwater, soil vapor.

1.2 Emergency and Project Management Contact Information

Provided below is a list of telephone numbers for use in the event of an emergency onsite.

Emergency Medical Service 911

Police: New Rochelle Police Department.....911

Hospital: Montefiore New Rochelle Hospital..... (914) 632-5000

National Response Center .....(800) 424-8802

Poison Control Center .....(800) 222-1222

Chemtrec .....(800) 262-8200

Fire: New Rochelle Fire Department.....911

Center for Disease Control .....(800) 311-3435

USEPA (Region II) .....(877) 251-4575

NYSDEC Emergency Spill Response .....(800) 457-7362

The following table includes the contact information for Site management and health and safety personnel:

Title	Contact	Cellular Phone
Project Manager	Anthony Cauterucci	551-455-3406
Site Health and Safety Officer	Ally Hassler	732-245-0365

1.3 Address of Hospital

Montefiore New Rochelle Hospital

16 Guion Place,

New Rochelle, NY 10801

(914) 632-5000

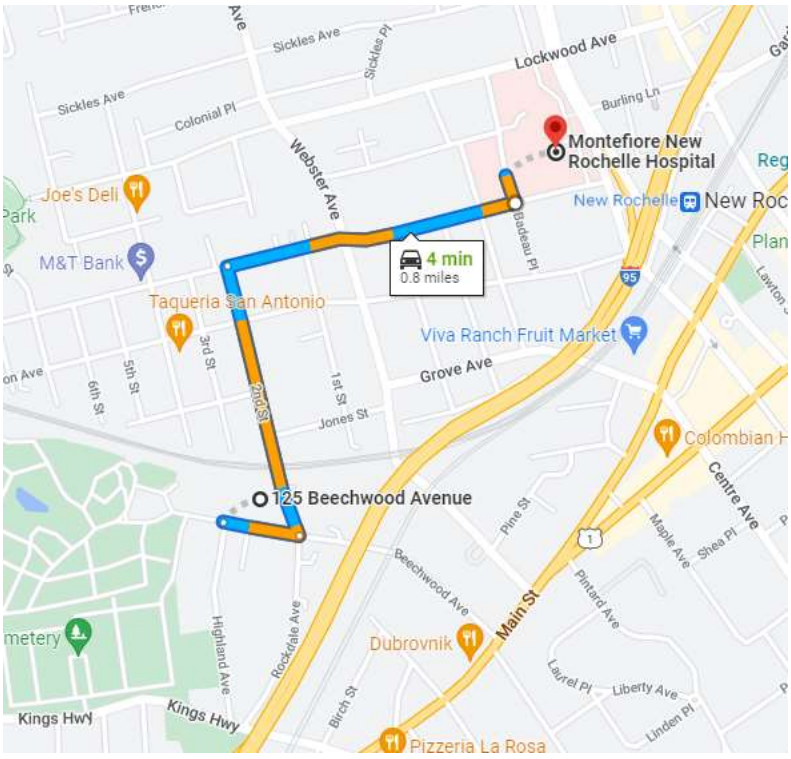
Directions from the Site to the Hospital

Head east on Beechwood Ave toward Highland Ave

Turn left onto 2nd St

Turn right onto Washington Ave

Turn left onto Glover Johnson Pl and follow signs for the Emergency Room



1.4 Emergency Equipment

The following is a list of emergency equipment to be kept onsite at all times:

- First Aid Kit
- ABC Fire Extinguisher
- Absorbent Pads
- Oil DryEye Wash

1.5 Spills

Spills associated with Site activities may be attributed to project-specific heavy equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, Site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to Site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of Site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure that equipment is functioning properly.

In the event of a spill, Site personnel will immediately notify the NYSDEC 24 Hour Spill/Emergency Line (800) 457-7362) and a spill number will be generated.

2.0 HEALTH AND SAFETY STAFF

This section briefly describes the health and safety responsibilities for the excavation work to be implemented at the Site. The following staff is responsible for ensuring compliance with the HASP.

2.1 General/Site Superintendent (GSS)

- Has the overall responsibility for the health and safety of all Site workers.
- Ensures that adequate resources are provided to the field health and safety staff to carry out their responsibilities as outlined below.

2.2 Site Health and Safety Officer (SHSO)

- Directs and coordinates health and safety monitoring activities.
- Ensures that field teams utilize proper personal protective equipment ("PPE").
- Conducts initial onsite specific training prior to Site Workers commencing work.
- Conducts and documents daily and periodic safety briefings.
- Ensures that field team members comply with this HASP.
- Immediately notifies the GSS and Project Manager of all accident/incidents.
- At the end of each day, communicates the tasks completed to the designated representatives, the next day's planned activities, any third-party issues, changes of work plans, and/or changes in level of PPE.
- Determines upgrading or downgrading of PPE based on Site conditions and/or real time monitoring results. Ensures that monitoring instruments are calibrated daily or as the manufacturer's instructions determine.
- Reports to the Project Manager to provide summaries of field operations and progress.
- Submits and maintains all documentation required in this HASP and any other pertinent health and safety documentation.

2.3 Site Workers

- Reports any unsafe or potentially hazardous conditions to the SHSO.
- Maintains knowledge of the information, instructions, and emergency response actions contained in the HASP.
- Complies with rules, regulations, and procedures as set forth in this HASP, including any revisions that are instituted.
- Prevents admittance to work Site by unauthorized personnel.

3.0 SITE DESCRIPTION AND BACKGROUND

The Site consists of one 3.17-acre property identified as Section 2, Block 691, Lot 005 and is developed with a large two-story commercial building occupied by U-Haul Moving & Storage and an asphalt-paved parking lot along the southwestern corner. Current operations at the Site consist of typical commercial office, self-storage, and parking operations, and associated property maintenance. The Site is bounded by railroad tracks to the north; Beechwood Avenue followed by residential buildings and commercial automotive repair services to the south; Second Street followed by commercial offices and automotive repair services to the east; and one commercial building occupied by Atlas Welding & Boiler Repair Inc. to the west. The Site is currently zoned "LI" for light industrial and commercial use.

3.1 Summary of Environmental Conditions

According to available historical sources reviewed the Site was developed with the existing one- to two-story warehouse in 1951, with a northern wing added in 1955. Tenants at the Site included Gries Reproducer Corp. (aka Gries Dynacast) from 1951 through 1985, who utilized the Site for metal fabrication, die-casting, and plating operations. The following relevant Recognized Environmental Conditions (RECs) were identified during a 2012 Phase I Environmental Site Assessment:

- The Site was historically utilized for metal fabrication, die-casting, and plating operations from 1951 through 1985. The former metal plating and die-casting process took place in the southern portion of the building at 125 Beechwood Avenue. An approximately 8,000-square foot area of wood block flooring with intermittent petroleum-like staining was observed in the southern and southeastern portion of the distribution warehouse. Wood-block flooring was reportedly used to absorb vibrations caused by the equipment.
- One 10,000-gallon fuel oil underground storage tank (UST) was closed-in-place beneath the northeastern portion of the building at 125 Beechwood Avenue. The fuel oil UST was located beneath an access door in the floor. Concrete was visible in the tank and fill line. An underground tank closure site assessment report dated August 1995 documented that visual observation of the UST during abandonment revealed no evidence of a release, and laboratory results associated with soil samples collected from three soil borings drilled along Second Street, and approximately 50 feet to the east of the UST, at a presumed downgradient location, indicated that residual detections were not indicative of an adverse impact to soil quality. Petroleum staining was observed in the boiler room in the northeast portion of the basement at 125 Beechwood Avenue near former UST supply lines associated the closed-in-place fuel oil UST.
- According to the New Rochelle Building Department, the Site at 125 Beechwood Avenue was formerly equipped with two gasoline USTs and a gas pump. The USTs were reportedly installed in 1979 and 1980 and removed in 1985 from the northeastern portion of the Site in the loading dock area.
- Petroleum staining and one out-of-use aboveground storage tank (AST) were identified in the gas meter room in the northeast portion of the building at 125 Beechwood Avenue. A recirculation vat (Vat -2) formerly used by the metal plating and die casting tenant, an AST (capacity and contents

unknown) and sump were located in the gas meter room. The sump reportedly discharged to the municipal sewer system. The AST in the gas meter room contained pressure gauges and product transfer pipes. The pipes were cut off and abandoned. The use of the tank was unable to be determined.

- Petroleum staining was identified on concrete adjacent to an air compressor blow-down vent at 125 Beechwood Avenue. Cracking was noted in the concrete.
- The building at 125 Beechwood Avenue operated a hydraulic freight elevator. The pit was observed to be filled with groundwater during a 2009 inspection. A second inspection was reported in 2012 with evidence of flooding, line failure, or hydraulic oil releases.
- Two Consolidated Edison (Con Ed) owned pad-mounted transformers were located adjacent to the southwestern exterior of the Site building at 125 Beechwood Avenue. The Con Ed transformers reportedly contained polychlorinated biphenyls (PCBs) between 23.34 and 30.82 parts per million (ppm).
- The Site at 125 Beechwood Avenue was identified on the New York (NY) Spill, Petroleum Bulk Storage (PBS), and Resource Conversation and Recovery Act (RCRA) Small Quantity Generator databases.

Investigations completed at the Site between 2012 and 2022 have identified chlorinated volatile organic compound (CVOC) and polycyclic aromatic hydrocarbon (PAH) impacts in groundwater and CVOC impacts in soil vapor and indoor air at the Site.

4.0 POTENTIAL HAZARDS RELATED TO FILL/SOIL

This section provides a brief summary of the potential Compounds of Concern and related hazards.

4.1 General

The following information is presented in order to identify the types of materials that may be encountered at the Site.

4.2 Compounds of Concern

Compounds of concern have been identified and are listed as following:

- Volatile Organic Compounds
- Semi-Volatile Organic Compounds

4.3 Hazard Assessment

The potential to encounter hazards related to soil and groundwater is dependent upon the type of work activity performed and the duration and location of the work activity. Soil and groundwater will be encountered during the sample collection process in small quantities; therefore, potential environmental hazards at the Site include ingestion and/or skin contact of soil and groundwater.

Prior to the beginning of each new phase of work, an activity hazard analysis will be prepared by the SHSO with the assistance of the Project Manager. The analysis will address the hazards for each activity performed in the phase and will present the procedures and safeguards necessary to eliminate the hazards or reduce the risk.

There is no real potential for Site Workers to be exposed to chemical hazards during the Scope of Work.

4.4 Exposure Pathways and Assessment

Exposure to these compounds during ongoing activities may occur through inhalation of dust particles and by way of dermal absorption and accidental ingestion by either direct or indirect cross-contamination activities. For groundwater, the most common exposure may occur via accidental ingestion or dermal absorption.

Inhalation of dust particles can occur during adverse weather conditions (high or changing wind directions). Due to the sampling quantities involved in this Scope of Work and as all work will be conducted indoors, there is little chance for generation or migration of dust. Should dust become an issue, dust control measures such as applying water to work areas will be implemented if visible dust is generated, in accordance with this HASP.

4.5 Additional Precautions

Dermal absorption or skin contact with Site soils is possible during intrusive activities at the Site. The use of PPE and proper vehicle and Site Worker cleaning procedures should significantly reduce the risk of skin contact. The potential for accidental ingestion of Site soils/groundwater is expected to be remote when good hygiene practices are used.

4.6 Hazard Assessment and Mitigation

Task	Hazards	Risk of Exposure	Action Taken
Mobilization/Demobilization	Inhalation/Skin Contact	Low	Proper PPE will be worn. No eating or drinking will be permitted in active work areas.
Drilling Activities	Inhalation/Skin Contact	Low/High	Proper PPE will be worn. No eating or drinking will be permitted in active work areas.

5.0 TRAINING

This section details the training requirement for Site Workers.

5.1 Site-Specific Training

Prior to the commencement of field activities, the SHSO will provide Site-specific training to all Site Workers. Site Workers will receive training that will specifically address the activities, procedures, monitoring, and equipment for Site operations. It will include Site layout, hazards, fire prevention and response, first aid equipment locations and emergency services at the Site and will highlight all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity. This training may be conducted in conjunction with other Site training or meetings.

5.2 Onsite Safety Meetings

Safety meetings will take place to discuss potential safety concerns for the upcoming activities. At a minimum, the appropriate field supervisors or foremen for all workers will conduct at least one formal daily safety meeting in the morning; however, additional meetings or briefings may be necessary as a result of changing conditions or modifying tasks. Copies of the daily safety meeting sign in sheet and a description of items discussed will be kept at the Site.

The meetings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety audits by the Contractor or other involved parties. These meetings may be conducted in conjunction with other Site training or meetings.

Visitors onsite must be made aware of the hazards onsite in a Site-specific safety briefing and sign a statement indicating that they will comply with the applicable requirements of this HASP.

5.3 First Aid and CPR

The SHSO will identify those individuals having first aid and CPR training to assist with emergency medical treatment during field activities, if necessary. The training will be consistent with the requirements of the American Red Cross. Certification and appropriate training documentation will be kept with the Site Workers' records by the SHSO.

6.0 SITE CONTROL AND PPE

This section provides a detailed description of the Site control measures and personal PPE procedures to be implemented at the Site. It is important to note that this HASP has been drafted to apply to work in Level D or modified Level D only. If the monitoring results require Level C protection or higher, all Site work will immediately cease until activities can be completed with workers trained in accordance with 29 CFR 1910.120.

6.1 Site Control

The Site, from land surface down to the native soil, will be considered the work area with respect to this HASP.

6.2 Personal Protective Equipment

The level of protection worn by Site Workers will be enforced by the SHSO. The level of protection may be upgraded at the discretion of the SHSO. All decisions on the level of protection will be based upon a conservative interpretation by the SHSO of the information provided by air monitoring results and/or other appropriate information. Any changes in the level of protection shall be recorded in the health and safety field logbook. If the level of respiratory protection needs to be upgraded, the Contractor will immediately contact the Project Manager and Owner's Representative.

The level of PPE for work on the Site is Level D PPE, which includes the following:

- Work uniform (long pants, sleeved shirt)
- Hard hat (all Geoprobe operations)
- Steel-toed, steel-shanked work boots
- Safety glasses
- Boot covers (as needed)
- Hearing protection (as needed)
- Reflective safety vest

If required by the SHSO, modified Level D PPE may also be used at the Site during specific activities, consisting of the following:

- Regular Tyvek coveralls (Poly-coated Tyvek as required)
- Outer gloves: leather, cotton, neoprene or nitrile (as required)
- Inner gloves: latex or nitrile (doubled) as required
- Chemical resistant boots over work boots (as required)
- Steel-toed, steel-shanked work boots
- Hard hat
- Safety glasses

- Hearing protection, as needed
- Reflective safety vest
- Half-face respirator
    - Metals – NIOSH/MSHA approved respirator (P100 Cartridges)
    - Silver – NIOSH approved dust respirator

6.3 Site Control for Unexpected Conditions

Although unexpected for this Scope of Work, in the event that unexpected conditions or hazardous waste is encountered, thereby requiring workers trained in accordance with 29 CFR 1910.120, the following four-zone approach will be employed in order to prevent the spread of the contamination from the area containing the unexpected condition and to protect Site Workers. The four-zones include the Exclusion Zone, the Contamination Reduction Zone, the Remediated Zone, and the Support Zone. A stepped remedial approach will be managed, and the zones modified as the work progresses. Each of the areas will be defined through the use of control barricades and/or construction/hazard fencing. A clearly marked delineation between the zones will be maintained. Signage will be posted to further identify and delineate these areas.

The following subsections describe the four zones that will be utilized in the event that unexpected conditions or contamination is discovered at the Site.

6.3.1 Exclusion Zone

The area where the unexpected condition is discovered would be considered the Exclusion Zone (EZ). All excavation and handling of contaminated materials generated as a result of the discovery of an unexpected condition would take place within the EZ. This zone will be clearly delineated by hay bales, jersey barriers, and/or similar methods. Safety tape may be used as secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Site Workers will not be allowed in the EZ without:

- A buddy (co-worker)
- Appropriate PPE
- Medical authorization
- Training certification

6.3.2 Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) will be established between the EZ and the property limits. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of Site Workers and equipment. The CRZ will be used for general Site entry and egress, in addition to access for heavy equipment and emergency support services. Site Workers will not be allowed in the CRZ without:

- A buddy (co-worker)

- Appropriate PPE
- Medical authorization
- Training certification

6.3.3 Remediated Zone

A Remediated Zone (RZ) will be established in portions of the Site where the remediation has been completed and only general construction work will be performed. Setup of the RZ will consist of implementing several measures designed to reduce the risk of workers' exposure and prevent non-trained workers from entering the non-remediated zone. Non-trained workers will work only in areas where the potential for exposure has been minimized by removal of all hazardous materials. The remediated zone will then be separated from the non-remediated zone by installing and maintaining temporary plywood or other construction fences along the boundary between the two zones. If potentially impacted material is uncovered in the RZ, all non-trained workers will be removed and the SHSO will assess the potential risks. If, at any other time, the risk of exposure increases while non-trained workers are present in the RZ, the non-trained workers will be removed. At all times, when non-trained workers are present in the RZ, air monitoring for the presence of VOCs will be conducted in the RZ, as well as at the fence line of the non-remediated zone.

6.3.4 Support Zone

The Support Zone (SZ) will be an uncontaminated area that will be the field support area for the Site operations. The SZ will contain the temporary project trailers and provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated Site Workers or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples. Meteorological conditions will be observed and noted from this zone, as well as those factors pertinent to heat and cold stress.

7.0 VEHICLE/SITE WORKER CLEANING AREAS AND DISPOSAL PROCEDURES

This section details the specific vehicle/Site Worker cleaning and waste disposal procedures to be implemented at the Site during the Scope of Work activities.

7.1 Contamination Prevention

Contamination prevention should minimize worker exposure and help to avoid spreading Site derived soil onto the public roadways. Procedures for prevention include:

Site Workers

- Do not walk through areas of soil.
- Do not directly handle or touch soil.
- No eating or drinking in the soil areas.
- Particular care should be taken to protect any skin injuries.
- Stay upwind of dust – not expected as all work is indoors.
- Do not use cigarettes, cosmetics, gum, etc., in areas of soil.

Heavy Equipment

- Care should be taken to limit the amount of soil that comes in contact with heavy equipment (tires, excavator, Geoprobe tracks).
- If tools used in soil are to be placed on equipment for transport to an area where all soil has been removed or to be cleaned, plastic should be used to keep the equipment clean.

7.2 Site Worker Cleaning Procedures

It is not expected that any Site Worker will need to employ a cleaning procedure when exiting the active work areas due to the limited amount of potential for soil exposure. There will be no designated Site Worker Cleaning Area for this Scope of Work.

7.3 Vehicle Cleaning Area/Stabilized Construction Entrances

It is not expected for any vehicle to require a cleaning area due to the limited amount of potential for soil exposure. No vehicle cleaning area or construction entrance will be constructed. Regardless, no soil will be spread or tracked onto the public roadway. No equipment will be allowed to leave the Site prior to the SHSO or Site Superintendent's inspection and verification that the equipment is clean.

7.4 Disposal Procedures

A system of segregating all waste will be developed by the SHSO. All discarded materials, waste materials, or other objects shall be handled in such a way as to preclude the potential for spreading Fill, creating a sanitary hazard, or causing litter to be left onsite. If any potentially contaminated materials (e.g., clothing, gloves, etc.) are generated, they will be bagged or drummed, as necessary, labeled, and segregated for disposal. All non-contaminated materials shall be collected and bagged for appropriate disposal as domestic waste.

8.0 HANDLING OF POTENTIAL HAZARDOUS MATERIALS

Any materials removed from the site shall be handled only by OSHA 40-Hour HAZWOPER trained personnel in appropriate PPE as discussed in Section 6.2 above.

Soil removed as part of sampling during the course of the remedial investigation activities will either be returned to the boring or containerized in labeled DOT-approved shipping containers by the end of the work day. Waste containers will be staged in a secure area until transportation by a permitted hauler to an authorized disposal facility can be arranged.

All groundwater removed during intrusive activities will be containerized in labeled DOT-approved shipping containers and staged in a secure area until transportation by a permitted hauler to an authorized disposal facility can be arranged.

All procedures outlined in Section 7 & 8 of this HASP will be implemented to prevent personnel and equipment contamination and migration offsite.

9.0 EMERGENCY PLAN

The emergency plan outlined in this section will be understood by all Site Workers prior to the start of work so that, should an emergency occur, all parties will know how to respond. During an emergency, the SHSO will perform air monitoring as needed and will assist responding emergency personnel with health and safety information related to the Site. Site Workers will endeavor to keep non-essential personnel away from the incident until the appropriate emergency personnel arrive. At that time, the emergency personnel will take control of the Site. Site Workers may be asked to lend assistance to emergency personnel such as during evacuations, help with the injured, etc.

9.1 Emergency Response Numbers

The following sections provide emergency response and project management phone numbers. Emergencies encountered on this Site will be responded to via offsite emergency services personnel and Site Workers.

Emergency Medical Service 911

Police: New Rochelle Police Department.....911

Hospital: Montefiore New Rochelle Hospital..... (914) 632-5000

National Response Center .....(800) 424-8802

Poison Control Center .....(800) 222-1222

Chemtrec .....(800) 262-8200

Fire: New Rochelle Fire Department.....911

Center for Disease Control .....(800) 311-3435

USEPA (Region II) .....(877) 251-4575

NYSDEC Emergency Spill Response .....(800) 457-7362

9.2 Emergency Evacuation

Evacuation procedures will be discussed prior to the start of work and periodically during safety meetings. In the event of an emergency situation such as fire or an explosion the area will be evacuated. All Site Workers will assemble outside of the active work areas and away from the area of danger and the fire department and other emergency response personnel will be notified by telephone of the emergency.

9.3 Injury to Site Workers

Emergency first aid shall be applied onsite as appropriate. In the event that additional medical attention is necessary, the injured worker should be brought to the emergency room at the hospital. If the Site worker is unable to be brought to the hospital, 911 should be called and an ambulance sent to the Site.

9.4 Site Worker Exposure

Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then clean or remove PPE and provide appropriate medical attention, if necessary. Eyes should be rinsed for 15 minutes upon chemical contamination.

Inhalation: Move to fresh air and/or, if necessary, clean or remove PPE and transport to emergency medical facility.

Ingestion: Clean or remove PPE and transport to emergency medical facility, if necessary.

Puncture Wound/Laceration: Clean or remove PPE and transport to emergency medical facility, if necessary.

10.0 FIELD TEAM REVIEW

Each Site Worker shall sign this section after Site-specific training is completed and before being permitted to work at the Site.

Date	Name	Signature	Company

Date	Name	Signature	Company

APPENDIX A: COMMUNITY AIR MONITORING PLAN

Community Air Monitoring Plan (CAMP)

125 Beechwood, LLC
BCP Site No. C360232
125 Beechwood Avenue
New Rochelle, NY 10901

The following Community Air Monitoring Plan (CAMP) will be implemented during the Remedial Investigation to be performed at the 125 Beechwood, LLC site (Site). Air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan (CAMP).* All air monitoring will be conducted on a real-time basis, using both hand-held field instruments and perimeter air monitoring stations, for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area.

Continuous monitoring will be performed for all ground intrusive activities including boring installations, the break-up and removal of concrete foundations and the excavation of contaminated soil. Periodic monitoring for VOCs and particulates will be required during non-intrusive activities (if required) such as the collection of soil samples from stockpiles or the placement of clean backfill or cover materials.

This CAMP is not intended for use in establishing action levels for worker respiratory protection that shall be described in the site-specific HASP prepared by the Contractor for the proposed excavations. Rather, its intent is to provide a measure of protection for the downwind community (i.e. off-site receptors including residences and businesses) from potential airborne contaminant releases as a direct result of the proposed remedial work activities. Reliance on this CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, this CAMP will help prevent the remedial construction activities from spreading contamination off-site through the air.

Particulate Monitoring, Response Levels, and Actions

Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations (one placed upwind and one placed downwind). The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings will be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review if requested.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings will be recorded and be available for State (DEC and NYSDOH) personnel to review if requested. Instantaneous readings, if any, used for decision purposes will also be recorded.

APPENDIX C: PROJECT TEAM RESUMES

PSG

PARTNER

Ally Hassler
Project Geologist

Education

B.S. Earth and Space Systems, West Chester University of Pennsylvania

Training

OSHA 40-Hour HAZWOPER
OSHA 30-Hour Construction
OSHA 30-Hour General Industry
OSHA 10-Hour Construction Safety and Health
Residential Radon Measurement Provider
NJDEP – Regulatory Training in Underground Storage Tanks
NJDEP – Groundwater in Fractured Bedrock
NJDEP – Effective Environmental Field Sampling and Data Collection

Highlights

9+ years of experience in the environmental consulting industry
9+ years of experience in the site mitigation industry
9+ years in the field conducting subsurface investigations, remediation investigations and implementing remediation action.
5+ years of experience in community air monitoring for large scale construction sites
Experience in technical report writing (specializing in NJDEP, NYSDEC)
Experience in ArcGIS mapping and figure design
Experience in regulatory compliance and operations and maintenance plans
Experience with superfund grants and proposal writing

Experience Summary

Currently Ms. Hassler is involved in remediation and site mitigation services focusing on sites that are in the New Jersey Department of Environmental Protection Site Remediation Program and New York City Department of the Environment Brownfields Program. Ms. Hassler's roles consists of managing specific cases including scheduling project tasks, performing project task, and report writing. Ms. Hassler has experience dealing with numerous regulatory agencies such as the NJDEP, NYSDEC, NYCDEP, and PADEP.

Ms. Hassler is responsible for facilitating field preparations, assisting during field activities; and, assisting in the preparation of figures, analytical tables, Health & Safety Plans, Preliminary Assessments, Phase 1 and Phase 2 Environmental Site Assessments, Remedial Action Work Plans, Remedial Investigation Reports, Grant Packages, Receptor Evaluations, and Remedial Action Reports.

Ms. Hassler has an in-depth knowledge and background in geology and stratigraphy. Ms. Hassler has installed numerous groundwater monitoring and recovery wells to model groundwater flow direction and monitor groundwater conditions. Ms. Hassler has conducted high-resolution site characterizations utilizing Membrane Interface Probes (MIP) to delineate and characterize sites in NJ and NY. Ms. Hassler has conducted in-situ chemical oxidation and bio-remediation of site to gain regulatory closure. Ms. Hassler also has experience in Community Air Monitoring and Qualitative Human Health Exposure Assessments. Ms. Hassler has monitored and delineated methane and lower explosive limit (LEL) monitoring at active and post-closure landfills.

Subsurface and Multi-Phase Investigations

- Community Air Monitoring Program Setup and Implementation
- Groundwater, Soil, Indoor Air & Soil-Gas Sampling
- High-Resolution Site Characterizations/MIP Investigations
- Historic Fill, Drycleaner, Industrial and Gas Station Investigations
- In-Situ Chemical Oxidation & Bio-remediation
- Soil Management and Continuous Air Monitoring (particulate, multi-gas)
- Horizontal and Vertical Delineation
- Free Product Recovery and Remediation
- Monitoring Well Installations (Direct push, air rotary, mud rotary, and hollow stem augers)
- Bedrock Investigations
- UST and AST Investigations and Closures

Environmental Consulting

- Proposal Writing and Remediation Cost Estimates
- NJDEP Superfund Grants

Report Writing

- NJDEP Preliminary Assessments
- Site Investigations
- NJDEP Receptor Evaluations and Well Searches
- Remedial Investigations
- Remedial Action Workplans, Remedial Action Reports, and Remedial Action Outcomes
- Water Supply Evaluations and Water Supply Sustainability Reports
- O&M Plans: AST/USTs, Asbestos, Mold, Lead Based Paint
- NYCDEP Office of Environmental Remediation VCP and BCP
- NYSDEC Brownfield Cleanup Program
- Phase 1 and Phase 2 Environmental Site Assessments
- Community Air Monitoring Plans (CAMPs)
- Health and Safety Plans (HASPs)
- Soil Managements Plans (SMPs)
- Spill Prevention, Control, and Countermeasure (SPCC) Plans

Other Skills

- ArcGIS
- Microsoft Excel

Project Experience

Elmwood Park, New Jersey - The site was destroyed in a fire and was very high-profile. Partner did continuous perimeter air monitoring while asbestos-contaminated debris were removed from the site.

Queens, New York - The site enrolled in the NYCDEP Voluntary Clean-up Program to address and clean up historic fill. Partner advanced soil borings and temporary well points to delineate subsurface impacts. Partner did continuous air monitoring and soils management on a fast-track deadline while building construction was occurring.

Overlook Medical Center, New Jersey - Partner conducted a large site-wide waste characterization sampling Partner did continuous air monitoring and soils management on a fast-track deadline while building construction was occurring.

Brooklyn, New York - The site enrolled in the NYSDEC Brownfield Cleanup Program to address and clean up historic contamination. Partner conducted soil vapor and indoor air sampling, membrane interface probe (MIP) characterization, and advanced soil borings and permanent/temporary well points to delineate subsurface impacts. Partner did continuous air monitoring and soils management on a fast-track deadline while building construction and renovations were occurring.

Readington, New Jersey - Partner delineated soil and groundwater contamination from an on-going dry cleaner release. Partner installed numerous groundwater monitoring wells at the site including a deep bedrock well for vertical delineation. Partner used a high-resolution site characterization method using a membrane interface probe (MIP) to log in 3-dimensions the plume of TCE and PCE in groundwater and shallow soils. Partner addressed the issue with In-Situ Chemical Oxidation into the plume.

Berywn Shopping Center, Berwyn, Pennsylvania - The site enrolled in the PADEP Act 2 program to address and clean up a dry cleaner release of chlorinated solvents. Partner advanced soil borings and temporary well points to delineate subsurface impacts. Partner also installed 9 monitoring wells and one permanent sub-slab soil gas point to monitor and evaluate the plume of TCE and PCE in the groundwater.

Affiliations

Society of Women Environmental Professionals – New Jersey Chapter
Sigma Gamma Epsilon – The National Honor Society for the Earth Sciences.

Contact

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PARTNER

Anthony Cauterucci, CHMM
Project Manager

Education
Bachelor's Degree in Environmental Science, Montclair State University, NJ

Registrations
Certified Hazardous Materials Manager (CHMM) License #30371

Training
40-Hour OSHA HAZWOPER Certification/8-Hour OSHA Refresher Training
10-Hour OSHA Construction Safety Certification

Highlights
Over 13 years in the environmental consulting industry including managing and executing environmental investigation and remediation projects throughout the Northeast under various regulatory programs.

Experienced in managing brownfield investigations and cleanups in New Jersey and New York.

10+ years of experience in environmental field sampling, fieldwork supervision, and project management of Phase IIs, Site and Remedial Investigations, and Remediations at a variety of sites with environmental conditions including dry cleaners, gasoline filling stations, automotive repairs shops, industrial facilities, multi-family residential buildings, agricultural properties, child care centers, and healthcare facilities.

Extensive involvement in underground storage tank (UST) removals and closures for both regulated and unregulated USTs in states throughout the Northeast including coordination, field assessment, sampling, and regulatory reporting.

Experienced with the investigation of vapor intrusion conditions, as well as pilot study assessments, design, installation, and operation and maintenance of Vapor Intrusion Mitigation Systems (VIMS).

Proficient in Phase I Environmental Site Assessments (ESAs), Preliminary Assessments (PAs), peer reviews, and remedial cost estimates.

Experience Summary
Mr. Cauterucci is a Project Manager for Partner Engineering and Science, Inc. (Partner) on Partner's Environmental Solutions Team. Mr. Cauterucci has over 13 years of experience as an environmental consultant, including managing and executing Phase II, Remedial Investigation, Remediation, and Brownfield Redevelopment projects under a variety of regulatory programs including the New Jersey Department of Environmental Protection (NJDEP), New York State Department of Environmental Conservation (NYSDEC), New York City Office of Environmental Remediation (NYC OER), Connecticut Department of Energy and Environmental Protection (CTDEEP), Pennsylvania Department of Environmental Protection (PADEP), Virginia Department of Environmental Quality (VADEQ), and Maryland Department of the Environment (MDE).

Project experience includes performance of remedial investigations and remediations of Brownfield Cleanup sites, oversight of tank removals, soil excavation and disposal, in-situ chemical oxidations, hydrogeological assessments involving petroleum hydrocarbons and chlorinated solvents, the preparation of PAs and Phase I ESAs and Phase II subsurface investigation reports, and the design, implementation, and operation of Sub-Slab Depressurization Systems (SSDS) for the purpose of vapor intrusion mitigation.

Project Experience

Former Leader and Dye Factory, Paterson, NJ

As the Project Manager for the environmental remediation of this former industrial site, Mr. Cauterucci worked with the Licensed Site Remediation Professional (LSRP) and prospective property owner to enter into a Pre-Purchaser Administrative Consent Order (PP ACO) with the NJDEP and set up a Remedial Funding Source (RFS) prior to property transfer. Following the property transfer and preparation of a Remedial Action Work Plan (RAWP), site work included the sampling and waste characterization of concrete and soil for transportation and offsite disposal as well as on-site reuse, the removal of four USTs ranging in size from 500 gallons to 20,000 gallons, the removal and disposal of over 7,000 tons of petroleum-impacted soil and 50,000 gallons of oil product and water, and the design and implementation of a VIMS, and application of institutional and engineering controls for the redevelopment of the property for future use as a charter school. Environmental remediation of the site exceeded $1 million dollars.

Historic Filling Station and Auto Repair, Inwood, Manhattan, NYC

Project manager in charge of assisting the property owner in entering into the NYSDEC Brownfield Cleanup Program (BCP), preparation of a Remedial Investigation Work Plan (RIWP) and Remedial Action Work Plan (RAWP), Site Investigation (SI), Remedial Investigation (RI), and Remedial Action (RA) of a historic filling station and auto repair within the Inwood Rezoning District in northern Manhattan. Work was completed under the oversight of a NY-Licensed Professional Engineer (PE). Site work included the removal of nine (9) USTs and over 2,000 tons of impacted soil, in-situ chemical oxidation of petroleum-impacted soil and groundwater, and the design and implementation of a VIMS for redevelopment of the property for future use as a mixed-use commercial and residential building.

Lawrence Shopping Center, Lawrence, NJ

Mr. Cauterucci was the project manager in charge of Site Investigation (SI), Remedial Investigation (RI), Remedial Action Work Plan (RAWP), Receptor Evaluations (RE), and Remedial Action (RA), of a shopping center with contaminated soil and groundwater due to a former auto repair operation and current dry-cleaning operation. Work conducted under the oversight of a LSRP per NJDEP regulations and guidance. Site work included the removal of over 600 tons of impacted soil, the installation and monitoring of more than 20 groundwater monitoring wells for horizontal and vertical contaminant delineation, a Membrane Interface Probe (MIP) assessment of chlorinated Volatile Organic Compounds (VOCs), and a Vapor Intrusion (VI) investigation. Remedial Action of chlorinated VOC groundwater contamination through Monitored Natural Attenuation (MNA) with a Classification Exception Area (CEA) along with Remedial Action Outcomes (RAOs) issued for Areas of Concern (AOCs) related to the former auto repair operation.

Historic Bulk Oil Storage Terminal, Swedesboro, NJ

Project manager in charge of Phase II, PA, SI, RI, RAWP, RE, and RA, and post-remedial groundwater monitoring at a former Standard Oil bulk petroleum terminal. Work conducted through the NJDEP under the oversight of a LSRP. Assisted the property owner in forensic analysis and age dating of petroleum hydrocarbon contamination in order to evaluate responsible party liability. Site work included the removal

of over 500 tons of impacted soil and 500 linear feet of sub-surface piping, post-excavation soil sampling, and installation and monitoring of onsite and offsite monitoring wells. Following remediation and post-remedial groundwater sampling, a site-wide RAO was issued for the property.

Gwynedd Valley Technology Center, Lansdale, PA

Onsite field manager for a vapor intrusion and indoor air investigation and mitigation of a 650,000+ square foot commercial/industrial building that was formerly an electronics manufacturing facility in Lansdale, Pennsylvania. Vapor intrusion investigation indicated that elevated VOCs existed beneath the building slab and indoor air levels of chlorinated VOCs exceeded PADEP screening levels. Responsible for providing oversight of a pilot study in the building to determine the potential area of influence for each vapor extraction point, installation of a SSDS consisting of 59 vapor extraction points throughout the interior of the building and sealing of joints and cracks within the building slab to prevent any preferential pathways from allowing the sub-slab air into the building. Conducted monthly operation and maintenance (O&M) check-ups on the SSDS to ensure proper operation. Vapor mitigation contract exceeded $1 million dollars.

Sunoco Gas Station, Fairfield, CT

Project manager in charge of a SI of an operating gas station and auto repair with multiple fuel USTs, underground hydraulic lifts, a heating oil UST, closed-in-place waste oil UST, and historic surface spills. Conducted soil and groundwater evaluation of numerous AOCs, installation and monitoring of multiple groundwater monitoring wells, report writing, and preparation of a remedial cost estimate for a potential buyer.

Industrial Warehouse, Pennsauken, NJ

Project manager in charge of a PA and SI at an industrial warehouse in Pennsauken, NJ. Work was conducted as a requirement of a property transaction under Industrial Site Recovery Act (ISRA) regulations through the NJDEP and under the oversight of a LSRP. Site investigation included the collection of shallow soil samples along an onsite rail line and offsite regional rail line. The AOC related to the rail line and the site received an RAO based on elevated regional rail line contamination and continued use of rail for product shipment and delivery.

Contact

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PARTNER

David Lent, P.G., LEP
Senior Project Manager

Education
B.A. Geology, State University at Buffalo

Registrations
Professional Geologist (P.G.), NY #00514-1
Licensed Environmental Professional (LEP), CT #644

Training
6 Graduate Credits, Hydrogeology, Wright State University, Dayton, OH.
3 Graduate Credits, Environmental Law, Wright State University, Dayton, OH.
40 Hr. OSHA HAZWOPER Training
8. Hr. OSHA HAZWOPER Refresher, March 2019
8 Hr. OSHA HAZWOPER Level B Safety Training
10 Hr. OSHA Training for the Construction Industry

Highlights
Mr. Lent is a New York State licensed Professional Geologist and a Connecticut Licensed Environmental Professional with more than 35 years of experience servicing client needs; identifying, characterizing and addressing complex environmental risk and valuation issues, nationwide. Mr. Lent facilitates and implements accurate and efficient environmental due diligence investigations, subsurface characterization and cost-effective site mitigation solutions. Mr. Lent has expertise in technical proposal development and managing complex subsurface investigations and remediation projects and has sound knowledge and understanding of environmental regulations, effectively fulfilling objectives of private and municipal clients, commercial real estate interests, financial institutions, and legal counsel.

Experience Summary
Mr. Lent is a Senior Project Manager with Partner's Environmental Solutions Group. In this role, Mr. Lent is responsible for managing, coordinating and implementing solutions-oriented site investigation and mitigation a wide array of activities including: Subsurface Investigations, hydrogeologic and geologic studies for environmentally impacted properties, geophysical studies, underground storage tank (UST) closures, vapor intrusion investigations, emerging contaminants (PFAS) investigations, third-party review, remedial action oversight, Brownfield Cleanup Program (BCP) investigations / remediation, Remedial Investigation/Feasibility Studies (RI/FS) projects and solid/petroleum/hazardous waste remediation. Mr. Lent has experience with Federal and State regulatory programs.

Project Experience
Connecticut Property Transfer Act Site Characterization / Remediation, Stamford Connecticut - Mr. Lent is currently managing the characterization and cleanup of a former auto repair / auto body facility located in Stamford, Connecticut. Based on historical use of the Site for automotive body repair, the Site meets the definition of an Establishment as defined by §22a-134 of the Connecticut General Statutes. Prior assessments of the Site identified that soils were impacted by polycyclic aromatic hydrocarbons (PAHs) and heavy metals, including arsenic and lead Site activities and a site-wide layer of historic fill. Partner completed and submitted to the Connecticut Department of Energy and Environment (CT DEEP) a Form III and

Environmental Condition Assessment (ECAF) Form, fully characterized all areas of concern (AOCs) on the Site, and successfully remediated soil hot spots, with the objective of achieving compliance with residential standards via 95% Upper Confidence Level statistical averaging. Post-remediation activities, including site groundwater monitoring and reporting are currently ongoing.

Groundwater Remediation, Westbrook, Connecticut - Mr. Lent is currently managing the remediation Leaking Underground Storage Tank (LUST) case at a marina located in Westbrook, Connecticut. Previous attempts by other consultants to remediate a gasoline-contaminated groundwater plume proved to be unsuccessful due to the tidal influence, which resulted in a greater than 10 ft smear zone, the heterogeneity of subsurface soils, and restrictions to horizontal groundwater flow related to the Site's existing seawalls and bulkheads. Partner utilized the large tidal swings to excavate soils at low tide, successfully removing more than 400 tons of source soils below the water table to a depth of 12 feet. Post-remediation groundwater monitoring and reporting is currently ongoing.

Emerging Contaminants (PFAS) Site Characterization, Upstate New York - Mr. Lent managed a New York State Superfund Site Characterization Investigation at a municipal airport to characterize on-site and off-site environmental impacts related to emerging contaminants, including polyfluoroalkyl substances (PFAS) associated with historical use of Aqueous Film-Forming Foam (AFFF) for firefighting and training activities, as well as PFAS and 1,4-dioxane impacts related to two previously closed landfills on the site. The scope of the investigation included the advancement of soil borings and monitoring wells site-wide, with associated soil and groundwater sampling; groundwater sampling of previously installed monitoring wells; surface water and sediment sampling from on-site ponds and storm drainage features; on-site potable well sampling and off-site residential well sampling; coordination with the New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), County officials and legal counsel, and reporting.

Dry Cleaner Remediation, Four Strip Shopping Centers, Dallas, Texas - Mr. Lent managed the concurrent investigation and remediation of four commercial strip shopping centers located in Plano, Richardson, Arlington and Highland Park, Texas. Each of these projects began with a Phase II ESA to investigate active on-site dry cleaners. In each case, the Phase II ESA identified significant impacts to subsurface soils and groundwater by the dry-cleaning solvent tetrachloroethene (PCE) and related degradation products of PCE. All four properties were entered individually into the Texas Commission on Environmental Quality (TCEQ) Voluntary Cleanup Program (VCP). Remedial investigation/feasibility studies were then conducted concurrently under TCEQ-approved work plans to delineate the full extent of subsurface contamination and facilitate selection of an appropriate remedial action plan. Based on the RI/FS findings, in-situ chemical oxidation (ISCO) was selected and approved by TCEQ for three of the four properties, and monitored natural attenuation was selected as the remedy for the fourth property. ISCO treatment consisted of a series of injections under approved Injection Control Permits of an aggressive Fenton's reagent mixture. Delivery of the reagents was hindered due to the presence of low-permeability clayey soils. Soil permeability was enhanced via hydraulic fracturing. TCEQ case closure was issued for each site.

42-Property Rush Phase II ESA Portfolio, Nationwide - Mr. Lent successfully managed expedited Phase II ESAs on a portfolio of 42 individual commercial retail properties located nationwide. The Phase II ESAs were initiated and completed between Thanksgiving and Christmas to support a year-end closing schedule. Each of the properties was situated on former gas station and/or dry-cleaning facility sites. The scope of the assessments included ground penetrating radar surveys; advancement of soil borings and temporary monitoring wells site-wide; soil and groundwater sampling, and reporting.

Petroleum Spill Remediation, Private Day Camp, Armonk, New York - Mr. Lent managed the investigation and cleanup of a gasoline-contaminated soil and groundwater at a private summer day camp. The spill had occurred as a result of releases from three leaking gasoline USTS that were utilized for decades to fuel facility trucks and landscaping equipment. The scope of work included a Phase II ESA; removal of the USTs, gas pump and appurtenances; a remedial investigation to delineate the nature and extent of soil and groundwater impacts on the subject property and an adjacent residential property; excavation and off-site disposal of petroleum-contaminated soils; vacuum extraction of product, light nonaqueous phase liquid (LNAPL) and dissolved-phase gasoline contaminated groundwater; and groundwater treatment using Oxygen Release Compounds (ORC Advanced®). Mr. Lent successfully obtained regulatory closure from the Westchester County Health Department and NYSDEC prior to the start of the facilities' summer season, which facilitated the release of escrow funds held back by a lender pending successful completion of the remediation.

Groundwater Remediation, Former Manufacturing Facility, Port Jervis, New York - Mr. Lent managed the investigation and cleanup of a former janitorial manufacturing facility under the NYSDEC BCP. Phase I and Phase II ESA investigations identified multiple petroleum USTs and historical use of chlorinated solvents. Groundwater was identified to be contaminated with trichloroethene (TCE) and petroleum-related compounds. The scope of work included a remedial investigation, UST removals, petroleum-contaminated soil excavation and groundwater remediation via ISCO technology. Site closure was granted by NYSDEC within one year of project initiation and the NYSDEC highlighted this site cleanup in their BCP brochure.

Affiliations

American Institute of Professional Geologists - Certified Professional Geologist (CPG)

Contact

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