18-46 Decatur Street

QUEENS COUNTY

RIDGEWOOD, QUEENS, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C241194

Prepared for:

BHMQ Realty LLC

18-46 Decatur Street

Ridgewood, Queens, New York, 11385

Prepared by:

Matthew M. Carroll, P.E.

&

TENEN ENVIRONMENTAL

121 West 27th Street, Suite 702

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 5, 2018

CERTIFICATION STATEMENT

I, Matthew M. Carroll, certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

091629 P.E.

12/5/2018 DATE

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List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: C241194 18-46 Decatur Street, Ridgewood, NY

Institutional Controls:	1. The property may be used for commercial use
	2. Environmental Easement
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Controls:	1. Cover system
	2. Sub-slab depressurization system (SSDS)
	3. Soil vapor extraction (SVE) system

Inspections:	Frequency
1. Cover inspection	Annually
2. SSDS	Quarterly
3. SVE	Quarterly
Monitoring:	
1. Groundwater Monitoring Wells MW-1, MW-2 and MW-3	Quarterly
Maintenance:	
1. Concrete floor	As needed
2. Blower maintenance	As needed
3. Inspect SSDS piping to confirm operation of appropriate valves	Monthly

Site Identification: C241194 18-46 Decatur Street, Ridgewood, NY

4. Inspect SVE piping to confirm operation of appropriate valves	Monthly
5. Pressure extension test of three SSDS soil vapor monitoring points to ensure design goals are being met	Startup and Annually
6. Performance test of three SVE soil vapor monitoring points to ensure design goals are being met	Startup and Quarterly
7. Effluent sample of soil vapor extraction system	Startup
Reporting:	
1. Groundwater Monitoring (to be provided with Periodic Review Report)	Annually
2. SSDS and SVE pressure monitoring (to be provided with Periodic Review Report)	Annually
2. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the 18-46 Decatur Street located in Queens, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP) Site No. C241194, which is administered by New York State Department of Environmental Conservation (NYSDEC).

BHMQ Realty LLC entered into a Brownfield Cleanup Agreement (BCA) on February 16, 2017 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in Figures 1 and 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix 4.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Queens County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

This SMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C241194-01-17; Site # C241194) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix 1 of this SMP.

This SMP was prepared by Tenen Environmental, LLC, on behalf of BHMQ Realty LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA) and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide

accurate contact information. A full listing of site-related contact information is provided in Appendix 1.

Table 1: Notifications*

Name	Contact Information
Ronnie Lee, PE, NYSDEC Project Manager	(518) 402-9767, ronnie.lee@dec.ny.gov
Jane O'Connell, Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Ridgewood, Queens County, New York and is identified as Block 3579 and Lot 45 on the New York City Tax Map (see Figure 1). The site is an approximately 0.11-acre area and is bounded by a two-story multi-family walk-up building (18-48 Decatur Street) to the north, a two-family building (18-40 Decatur Street) to the south, railroad tracks followed by Evergreen Park to the east, and a two-family building (18-39 Decatur Street) and an industrial/manufacturing building (18-37 Decatur Street) to the west (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix 4 –Environmental Easement. The owner of the site parcel at the time of issuance of this SMP is:

BHMQ Realty LLC
18-46 Decatur Street
Ridgewood, Queens, New York, 11385

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a two story rectangular-shaped building occupying the entirety of the parcel lot. The Site is zoned industrial and manufacturing (M1-4D) and is currently utilized for storage.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Site include residential properties; the properties immediately north of the Site include residential properties; the properties immediately east of the Site include

railroad tracks followed by a public park; and the properties to the west of the Site include commercial and residential properties.

2.2.2 Geology

The Site is underlain by approximately two-feet of light brown to dark brown medium sands and fill material, followed by glacial till, including light and dark brown fine to medium sand with cobbles. Native till is expected to extend to bedrock, expected at approximately 350 feet below grade (ft-bg).

Site specific boring logs are provided in Appendix 5.

2.2.3 Hydrogeology

Groundwater was encountered at approximately 67 ft-bg and measured groundwater flow is generally to the south.

Investigations at the Site have documented groundwater concentrations of contaminants above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards. Groundwater beneath the Site is characterized as Class GA. The best usage for Class GA groundwater is as a source of potable water. Groundwater is not utilized as a source of potable water at the Site. Potable water for the Site is supplied by the City of New York from upstate New York reservoirs.

A groundwater contour map is shown in Figure 3. Groundwater elevation data is provided in Table 3. Groundwater monitoring well construction logs are provided in Appendix 5.

2.3 Investigation and Remedial History

The Site is currently used as a warehouse for building materials. Based on a review of historic information, the Site was used as a dry cleaner from at least 1991 to

2015. The former occupant of the Site, Full Dress Formals, was identified as a Small Quantity Generator of Hazardous Wastes on the regulatory database, with no violations. Prior uses include a warehouse of waterproofing materials, a knitting mill, wagon and auto storage and offices.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

Phase I Environmental Site Assessment, 1846 Decatur Street, Queens, New York. EBI, May 10, 2016

A Phase I ESA conducted in May 2016 identified the historic use of the Site as a dry cleaner as a Recognized Environmental Condition (REC). Based on the information included in the Phase I ESA, the duration of the dry cleaning activities was approximately 24 years. Full Dress Formals was identified as a Small Quantity Generator of Hazardous Wastes on the regulatory database, with no violations.

Phase II Environmental Site Assessment (ESA), 18-46 Decatur Street, Queens, New York. EBI, June 3, 2016

The 2016 Phase II investigation included collection of ten soil and five sub-slab soil vapor samples. Soil samples were collected with a core drill and hand tools or using a Geoprobe hydraulic push drill rig. The borings were advanced in the shallow depths, with the deepest boring ending at 8.5 ft-bg.

Soil Sampling and Results

Five soil borings were completed to refusal in the central area of the Site. Each boring was field-screened for organic vapors using a photoionization detector (PID). No visual or olfactory evidence of contamination was observed in the soil samples. PID readings ranged from 3.1 to 4.9 parts per million (ppm). Two soil samples were collected from

each boring and were analyzed for volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260.

Tetrachloroethene (PCE) was detected in seven of the ten of the soil samples collected from the five borings. The detected PCE concentrations [max: 0.0748 milligrams per kilogram (mg/kg)] were below the NYSDEC Unrestricted Use Soil Cleanup Objective (SCO) of 1.3 mg/kg. No other VOCs were detected in the soil samples.

Sub-Slab Soil Vapor Sampling and Results

Prior to soil boring installation, sub-slab soil vapor sampling points (SB-1 through SB-5) were installed in the ground floor slab using a hand-held hammer drill to a depth of 0.5 feet below the surface of the floor slab. Soil vapor sample locations are shown on Figure 3. Sub-slab soil vapor samples were analyzed for chlorinated VOCs (cVOCs) by EPA Method TO-15.

No indoor air samples were collected during the Phase II ESA. Elevated concentrations of PCE [max: 401,000 micrograms per cubic meter (ug/m^3)] and trichloroethene (TCE, max: 597 ug/m^3) were detected in sub-slab soil vapor.

Based on Decision Matrix B of the New York State Department of Health (NYSDOH) Soil Vapor Guidance, PCE soil vapor concentrations above 1,000 ug/m^3 should be mitigated regardless of the indoor air concentrations. Based on Decision Matrix A of the NYSDOH Soil Vapor Guidance, TCE soil vapor concentrations above 60 ug/m^3 should be mitigated regardless of the indoor air concentrations.

No other cVOCs on the NYSDOH Matrices were detected in the sub-slab soil vapor samples.

Remedial Investigation, 18-46 Decatur Street, Queens, New York. Tenen Environmental, LLC, August 7, 2017

A Remedial Investigation (RI) was performed to further characterize the nature and

extent of contamination at the Site. A Remedial Investigation Report was prepared by Tenen on August 7, 2017. The 2017 RI included the collection of 24 soil samples, five sub-slab soil vapor samples, two indoor air samples and three groundwater samples.

Soil Sampling Methodology and Results

A total of seven soil borings were advanced at the Site. Drilling was performed by Aquifer Drilling and Testing, Inc. (ADT) of Mineola, NY. Three soil borings (TSB-3, TSB-5 and TSB-7) were advanced to below the groundwater interface utilizing a Sonic Geoprobe®. Soil samples were collected from plastic sleeves through a five-foot sonic sampler. Four soil borings (TSB-1, TSB-2, TSB-4 and TSB-6) were advanced using a Geoprobe® direct push 6610DT. Soil samples were collected from a two-inch diameter by five-foot long dedicated acetate liner.

For each boring, soil samples were collected from two feet below grade, from the zone of the highest PID readings (if encountered), from the water table interface, and from the next apparent non-impacted zone or the terminal depth of the boring were analyzed. If no contamination was observed, samples were collected from two feet below grade, groundwater interface, and terminal depth. Additional VOC samples were collected from select intervals. At SB-1, a concrete chip sample [SB-1(SURFACE)] was collected for analysis of VOCs.

Soil samples were analyzed for the following with a Category B deliverable data package:

- Target Compound List (TCL) VOCs by EPA Method 8260C;
- TCL semivolatile organic compounds (SVOCs) by EPA Method 8270D;
- Pesticides by EPA Method 8081B and polychlorinated biphenyls (PCBs) by EPA Method 8082A;
- Target Analyte List (TAL) Metals by EPA Method 6010C and 7471B (mercury, Hg);
- Cyanide by EPA Method 9012B; and
- Hexavalent chromium by EPA Method 3060A.

Summary of Soil Analytical Results

- No compounds were detected above the Commercial Use SCOs.
- No SVOCs, pesticides or PCBs were detected above the Protection of Groundwater SCOs.
- PCE was detected at concentrations above the Protection of Groundwater SCO at two locations (TSB-6 and TSB-1) within the shallow soil interval. The highest concentration of PCE was identified in shallow soil directly adjacent to the former dry cleaning equipment room.
- A concrete chip sample collected from the concrete slab within the area of the former dry cleaning equipment room. PCE was detected at 55 mg/kg in the concrete chip sample.
- No VOCs were detected below the groundwater interface, with the exception of acetone, a common laboratory contaminant, at a low concentration.
- Mercury, likely attributed to historic fill material, was detected in one sample at a concentration above the Protection of Groundwater SCO.

Sub-slab Soil Vapor, Exterior Soil Vapor and Ambient Air Sampling Methodology and Results

A total of five sub-slab soil vapor points (TSS-1 through TSS-5) were installed approximately two inches below the building slab. TSS-1 was installed at a location adjacent to the former location of the dry cleaning equipment. TSS-2 through TSS-5 were installed throughout the building footprint. One exterior sub-slab soil vapor point (TSS-6) was installed below the public sidewalk on the western side of Decatur Street between Forest Avenue and Seneca Avenue near residential properties on Decatur Street.

Two indoor air samples were collected at breathing height (3-5 feet above the building slab) inside the building and one outdoor ambient air sample was collected upwind of the Site.

Sub-slab and exterior soil vapor points were installed using a hand-held hammer drill with a concrete drill bit. The drill bit was extended approximately two inches below the slab at each location. At the terminal depth, a sample probe attached to ¼-inch diameter

Teflon® tube was installed. The borehole above the sampling probe to grade was sealed using an inert sealant to prevent ambient air mixing with the soil vapor. Ambient air was purged from the boring hole by attaching the surface end of the ¼-inch diameter Teflon® tube to an air valve and then to a vacuum pump. The vacuum pump removed three volumes of air (volume of the sample probe and tube) prior to sample collection. The purged air was collected in tedlar bags and off-gassed away from the Site. The flow rate for both purging and sample collection did not exceed 0.2 liter per minute.

Sub-slab soil vapor, indoor air and ambient air samples were collected in six liter summa canisters using eight-hour regulators.

The summa canisters were transported to Alpha Analytical, a New York State Environmental Laboratory Approval Program (ELAP)-certified laboratory, under chain of custody procedures and the samples analyzed for VOCs using EPA method TO-15.

Summary of Sub-Slab Soil Vapor, Exterior Soil Vapor, Indoor Air and Ambient Air Analytical Results

- PCE was detected in sub-slab soil vapor, exterior soil vapor, indoor air and ambient air samples. Based on NYSDOH Decision Matrix B, the sub-slab soil vapor concentrations detected at the Site required mitigated. Mitigation was not required for other compounds.
- The highest concentration of PCE was detected in sub-slab sample TSS-2, located within the area of the former dry cleaning equipment. PCE was detected at this location at a concentration of 3,440 ug/m^3.
- The distribution of PCE beneath the sub slab is consistent with the results of the June 2016 soil vapor sampling, with the highest concentrations identified in areas closest to the former dry cleaning equipment.
- One exterior soil vapor sample point was installed below the sidewalk on the western side of Decatur Street. PCE was detected at this off-Site location at a concentration of 13.4 ug/m^3.
- Several petroleum-related compounds were detected above ambient air concentrations in sub-slab and soil vapor samples including the following

compounds: ethanol, xylenes, benzene, ethylbenzene, heptane and toluene.

- Two indoor air samples were collected along the western and eastern Site boundaries. PCE was detected in both indoor air samples with a maximum concentration of 23.1 ug/m^3.
- Several additional volatile compounds were detected in the indoor and ambient air samples, likely attributed to machinery maintenance inventory stored at the Site, including auto cooling system repair materials

Groundwater Sampling Methodology and Results

Three soil borings were converted to two-inch diameter permanent groundwater monitoring wells (MW-1 through MW-3). All wells were installed using a two-inch diameter, fifteen-foot long PVC screen (0.020-inch slot) installed to 10 feet below the groundwater table.

Samples were collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) "Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", (EQASOP-GW 001, Revision 3, dated July 30, 1996; Revised: January 19, 2010). All groundwater samples were analyzed for TCL VOCs, TCL SVOCs, pesticides, PCBs, TAL metals, cyanide and hexavalent chromium (total and dissolved metals).

Summary of Groundwater Analytical Results

- PCE was detected in all three monitoring wells above the Class GA Standard, at concentrations ranging from 9.9 to 25 micrograms per liter (ug/l). The highest concentration of PCE was detected in MW-2, located along the downgradient border of the Site. No other VOCs were detected above Class GA Standards.
- Several polyaromatic hydrocarbons (PAHs) were detected at low concentrations above Class GA Standards.
- No pesticides or PCBs were detected above Class GA Standards.

- Several dissolved and total metals (magnesium, manganese and/or iron) were detected above Class GA Standards, likely attributable to the conditions of the aquifer.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated April 2018 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

2.5.1 Soil

The remedial objective for soil was to meet the Commercial Use SCOs for non-PCE constituents and the Protection of Groundwater SCO for PCE, as defined by 6 NYCRR Part 375-6.8, at all depths throughout the Site. No compounds were detected in soil above the Commercial Use SCOs. Therefore, hot spot excavations were advanced to remove PCE above the Protection of Groundwater SCOs. Excavation allowed for the removal of the bulk of contaminant mass at the Site; however, due to structural constraints, remaining contamination exists at three locations. Two of the areas are below load bearing columns (as defined by end-point samples HS-11 and HS-16) and one area (end-point sample HS-23 along the north wall) is along an unstable adjacent building foundation. Hot spot excavations were conducted to a maximum depth of four ft-bg.

Confirmation endpoint sampling was completed across the excavation area along the bottom of the hot spot, with the maximum depth of impacts observed at four ft-bg. Soil was screened using a PID and the highest suspected contamination was sampled along bottom and sidewall intervals. Areas around the two load bearing columns (HS-11 and HS-16) were excavated to the extent that structural stability allowed. End-point sample HS-23 along the north wall was left in place and delineation sampling was completed (HS-21) at an area adjacent to the SSDS suction pit (shown on Figure 4). PCE

was detected at a concentration of 0.0025 mg/kg, below the Protection of Groundwater SCO of 1.3 mg/kg at HS-21.

All confirmation samples met Commercial Use SCOs.

Table 2: Remaining Soil Sample Exceedances

Sample ID:	NY-RESGW	HS-11	HS-16	HS-23
Collection Date:		5/11/2018	6/18/2018	6/22/2018
Units: mg/kg		Sidewall, Column	Sidewall, Column	Sidewall
Tetrachloroethene	1.3	26	11	40

NY-RESGW= New York NYCRR Part 375 Groundwater Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
Cells highlighted in yellow indicate concentrations above the NY-RESGW

Table 2 and Figure 4 summarize the results of all soil samples collected that exceed the Protection of Groundwater SCOs for PCE at the site after completion of the remedial action.

2.5.2 Groundwater

Contamination may remain in the groundwater; however, the bulk of the cVOC contaminant mass was treated. Groundwater was encountered at a depth of approximately 67 ft-bg. As part of the remedy, groundwater was treated using in situ chemical oxidation (ISCO) via an encapsulated reactant cylinder emplaced into the existing on-site groundwater monitoring wells (MW-1 through MW-3). Encapsulated reactant technology enables the oxidant, solid form potassium permanganate, to provide years of controlled oxidant release in saturated soils and groundwater. Each cylinder has a 1.35-inch diameter and is two-feet long, with approximately 2.6 pounds of solid form oxidant crystalline particles of the oxidant potassium permanganate, mixed with a benign paraffin wax. In each well, three two-foot cylinders were placed in a PVC holder and lowered within the full screen interval (10-feet). The cylinders will remain within the wells for their life cycle, typically between two to five years depending upon the groundwater flow.

The design goal is to decrease the concentrations of PCE to below the Class GA Standard. Baseline groundwater contaminant conditions were completed prior to the remedy and are shown below.

Table 3: Remaining Groundwater Exceedances[1]

Sample ID:	NY-TOGS-GA	MW-1	MW-2	MW-3
Collection Date:		5/3/2018	5/3/2018	5/3/2018
Tetrachloroethene	5	10	18	7.5

Notes:
All concentrations are in ug/l
NY-TOGS-GA = New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004 (Class GA Standard).
Cells highlighted in yellow indicate concentrations above the NY-TOGS-GA

Post-remedial groundwater samples will be collected quarterly for at least two years (i.e. eight quarters) or until concentrations are stable below Class GA Standard. Proposed post-remedial groundwater monitoring well locations include the existing well network, no new groundwater wells are proposed for installation. Samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) and results will be reported in the Periodic Review Report, as detailed in Section 7.0 of this SMP. As per recommendations made by Hepure Technologies, Inc., the manufacturer of the potassium permanganate cylinders, a minimum of one week prior to sampling, the cylinders will be removed to allow for dispersion within the groundwater.

Groundwater samples will be analyzed for VOCs.

Table 3 and Figure 5 summarize the results of all samples of groundwater that exceed the SCGs after completion of the soil excavation but prior to implementation of ISCO. Monitoring well boring and construction logs for the existing groundwater well network are included in Appendix 5.

[1] This table shows the results of PCE only, which is the contaminant of concern. No other VOCs were detected above Class GA Standards. Some PAHs and common earth metals were detected above Class GA Standards; these were attributed to historic fill in the groundwater sample aliquot or typical aquifer conditions.

2.5.3 Soil Vapor

Contamination may remain in the soil vapor; however, the bulk of the cVOC contaminant mass was removed. Remaining soil vapor contamination will be addressed by the operation of a SSDS and a SVE system at the Site. SVE wells were installed at the three locations with remaining soil PCE contamination further discussed in Section 3.3.3 of this SMP.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix 2) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the RAWP and Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to commercial uses only. Adherence to these ICs on the site is required by the

Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 2. These ICs are:

- The property may be used for: commercial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- New York City code prohibits the use of groundwater for potable purposes.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 2, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited;

3.3 Engineering Controls

3.3.1 Cover System

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of six inches of concrete building slab. Figure 6 presents the location of the cover system. The Excavation Work Plan (EWP) provided in Appendix 2 outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix 11.

3.3.2 Sub-slab Depressurization System (SSDS)

To minimize the potential for vapor intrusion, an active SSDS was installed. The SSDS will depressurize below the current building slab as compared to the building environment.

The SSDS consists of four suction pits installed beneath the building slab, and connected to a fan on the roof via cast iron (interior) and PVC (exterior) piping. To create the suction pits, the existing slab was saw cut and the underlying soil was removed to a depth of at least 18 inches. The void space was lined with geotextile fabric and a layer of ¾" clean stone aggregate.

The overall goal of the system is to create a pressure differential of -0.02 inches per water column (in-wc) between the at-grade building and sub-slab environments; however, differential pressure readings above -0.004 in-wc will be considered acceptable. An alarm system was installed that will notify the building management if a drop in pressure occurs, which indicates that the system is not operating as designed. The system has been designed in general accordance with the New York State Department of Health

(NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (NYSDOH Soil Vapor Guidance), including Section 4.2.2, *System-specific recommendations*. The exhaust location is located on the highest point of the building's roof and meets the requirements of the NYSDOH Soil Vapor Guidance, specifically Section 4.2.2 c (6), which reads:

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust is located 13 feet above the access roof level and at least 25 feet away from adjoining buildings and HVAC intakes.

A pre-design pilot test was completed on May 3, 2018 to confirm the radius of influence (ROI) of the pressure field; all measurements were above 0.02 in-wc. A pressure field extension test was also completed. A blower test was performed on August 2, 2018 to size the blower. Based on the sizing test, a Plastec P15-2 fan with a weather hood was recommended in order to meet design goals.

The SSDS design for the remedial action was approved in Tenen's RAWP dated April 2018. The suction pits and piping were installed as the hot spot excavation was being completed, and the final SSDS blower was installed on September 17, 2018. The system was started up on September 18, 2018 and a monitoring point communication test was completed to ensure design goals were being met. The monitoring point communication test results are shown below in Table 4. The performance goal of the sub-slab vapor mitigation system was to depressurize below the slab to at least -0.02 inches of water column (in-wc); however, differential pressure readings above -0.004 in-wc were considered acceptable. Results of the communication test indicate that all soil vapor monitoring points pass the performance criteria as included in the approved RAWP. The SSDS communication was balanced to incorporate the SVE wellpoints; once the SVE is no longer required, the SSDS will be rebalanced to increase the pressure of the SSDS. Locations of the three monitoring points are shown in Figure 6.

Table 4: SSDS Monitoring Point Communication Test Results

Monitoring Point	Pressure (in-wc)
MP-1	-0.693
MP-2	-0.024
MP-3	-0.009

Procedures for operating and maintaining the SSD system are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As built drawings, signed and sealed by a professional engineer, are included in Appendix 9 – Operations and Maintenance Manual. Figure 6 shows the location of the ECs for the site.

3.3.3 Soil Vapor Extraction (SVE) System

The objective of the SVE system is to remove PCE from the remaining soil contamination; the system will also address PCE in soil vapor and prevent off-Site migration of soil vapors. This was accomplished by installing three extraction wells in the areas with remaining PCE contamination, as discussed in Section 2.5.1 of this SMP, and applying a vacuum. Three two-inch vertical SVE wells were constructed of four feet of slotted (0.020 inch) schedule 40 PVC screen. The extraction wells were installed to a depth of four ft-bg and placed in a two-foot diameter gravel base. The extraction wells were plumbed into the same piping that installed for the SSDS. Each of the extraction wells were fitted with valves tying in to the SSDS piping. The discharge location for the blower is located on the building roof consistent with the NYSDEC DAR-1 guidance.

The RAWP and NYSDEC Decision Document allow for a contingent Track 4 Restricted Commercial remedy, which included the installation of a SVE system. A letter report dated July 20, 2018 was submitted to NYSDEC for approval of the SVE design and performance testing. In an email dated July 23, 2018 from Project Manager Ronnie Lee, the SVE performance testing was accepted with comments about the piezometer placement and completion of a pressure field extension test.

SVE performance testing included installation of three shallow piezometers in the soil along the outer periphery of the known areas on contamination exceeding the Protection of Groundwater SCO for PCE, to be treated by each of the three extraction wells. A vacuum reading of 0.1 in-wc induced in each of the piezometers was considered

an acceptable value in accordance with the Environmental Protection Agency's (EPA) "*Soil Vapor Extraction Technology Reference Handbook, February 1991.*"

A blower test was performed on August 2, 2018 to size the blower. The SVE piping was installed after the hot spot excavation was completed, and the final blower was installed on September 17, 2018. On August 1, 2018, three SVE monitoring points were installed as shown on Figure 6. The system was started up on September 18, 2018. A pressure field extension test was completed utilizing the installed soil vapor and SVE monitoring points on September 18, 2018 to confirm the ROI of the pressure field of the SVE system and SSDS. The communication test results are shown in Table 5 and indicate that the SVE piezometers pass the performance criteria approved by NYSDEC and NYSDOH (pressure less than or equal to -0.1 in-wc).

Table 5: SVE Monitoring Point Communication Test Results

Piezometer	Pressure (in-wc)
SVE-1	-0.717
SVE-2	-1.242
SVE-3	-0.606

In accordance with the regulatory requirements of the air toxics control program 6 NYCRR Part 212, the degree of air cleaning required for sources of toxic air contaminants is based on an Environmental Rating assigned by a DEC permit engineer. Ratings are based on a contaminant's toxicity (high, moderate or low), predicted offsite air concentrations, the proximity of ambient impacts to neighboring communities, existing background concentrations and the potential future growth of the impacted area. One effluent sample was collected for laboratory analysis of VOCs by EPA Method TO-15. The sample was collected from the blower effluent discharge stack at startup of the SVE and is further discussed in Section 4.3.2 of this SMP.

3.3.4 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.4.1 - Cover System

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.4.2 - Sub-Slab Depressurization System (SSDS)

The active SSDS will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that monitoring data indicates that the SSDS may no longer be required, a proposal to discontinue the SSDS will be submitted by the remedial party to the NYSDEC and NYSDOH.

3.3.4.3 - Soil Vapor Extraction (SVE) System

The SVE system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SVE system may no longer be required, a proposal to discontinue the system will be submitted by the remedial party. Conditions that may warrant discontinuing the SVE system include contaminant concentrations in groundwater and/or soil that: (1) reach levels that are consistently below ambient water quality standards or the site SCGs, as appropriate; (2) have become asymptotic to a low level over an extended period of time, as accepted by the NYSDEC; or (3) the NYSDEC has determined that the SVE system has reached the limit of its effectiveness. This assessment will be based in part on post-remediation

contaminant levels in groundwater collected from monitoring wells located throughout the site. Systems will remain in place and operational until permission to discontinue their use is granted in writing by the NYSDEC.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix 6.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix 8 – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and

- If site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

Monitoring of the cover, SSDS and SVE system will be performed on a routine basis, as identified in Table 6 Remedial System Monitoring Requirements and Schedule (see below). Modification to the frequency or sampling requirements will require approval from the NYSDEC. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the SSDS or SVE system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSDS and SVE system components to be monitored include, but are not limited to, the components included in Table 6 below.

Table 6 – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Vacuum Blower	Pressure readings at three soil vapor monitoring points	Design goal of ≤ -0.02 in-wc; ≤ -0.004 in-wc acceptable	Quarterly
SSDS Piping	Visual inspection of the SSDS mechanical and above grade piping components	N/A	Monthly
SVE Piping	Visual inspection of the SVE mechanical and above grade piping components.	N/A	Monthly
	Pressure readings at three piezometer locations.	Design goal of ≤ -0.1 in-wc	Quarterly
Cover System	Visual inspection of concrete floors and perforations through floor for cracking or degradation	N/A	Annually

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix 8 - Site Management Forms. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning or the system is not performing within specifications; maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

4.3.2 Remedial System Sampling

One effluent vapor sample was collected from the SSDS/SVE blower at start-up of the system on September 18, 2018. Sampling locations, required analytical parameters

and schedule are provided in Table 7 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 7 – Remedial System Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
	VOCs (EPA TO-15)	
Blower Effluent Sample (SVE-1)	X	At start-up of the SSDS/SVE system

One effluent sample was collected for laboratory analysis of VOCs by United States EPA Method TO-15 by an ELAP-certified laboratory. The sample was collected from the blower effluent discharge stack at startup of the SVE and will be used to determine if air treatment is required. During the sampling, a conservative average flow rate from the system was estimated. Based on this flow rate over a duration of eight hours, and using the analytical data, the estimated mass of extracted vapors will be calculated. Acceptable air concentrations listed for annual emission rates are located in Appendix A of DAR-1, and will be cross referenced with the Site's estimated mass of extracted vapors to evaluate if air treatment is required. Results of this sampling and associated calculations will be included in the FER.

Detailed sample collection and analytical procedures and protocols are provided in Appendix 6 – Quality Assurance Project Plan.

4.4 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the Site groundwater monitoring network on a routine basis. In addition, one soil sample will be collected prior to petition of shut down of the SVE system. For the first round of sampling, all three wells will be sampled for

emerging contaminants as per requirements from NYSDEC. Sampling locations, required analytical parameters and schedule are provided in Table 8 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 8 – Post Remediation Sampling Requirements and Schedule

	Analytical Parameters		Schedule
Sampling Location	VOCs (EPA Method 8260C)	**Emerging Contaminants***	
Monitoring Wells MW-1, MW-2 and MW-3	X	X	Quarterly VOCs. One round of emerging contaminants
Subsurface Shallow Soil Location	X		Prior to petition shut down of SVE

*Emerging contaminants include 1,4-dioxane, Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) and other associated perfluorinated chemicals (PFCs) as per NYSDEC requirements for State remedial programs.

Detailed sample collection and analytical procedures and protocols are provided in Appendix 6 – Quality Assurance Project Plan.

4.4.1 Soil Sampling

The design goal of the SVE is to remove PCE from the soil. Soil sampling will be performed once, at a minimum, to assess the quality of the soil, specifically the presence of remaining PCE contamination, prior to petitioning shut down of the SVE system. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The on-site soil sample location is shown on Figure 6 and will be sampled prior to petitioning for shut down of the SVE system. One soil boring will be advanced to a depth of four ft-bg within the area adjacent to the easternmost extraction well (former location of HS-23). Due to structural constraints under load bearing columns, soil samples are not able to be collected from the two remaining contaminated soil locations. Location HS-23 contained the highest concentration of PCE in soil and is considered to be the most conservative sampling locations. Figure 6 shows the location of the proposed shallow soil boring. The soil boring will be analyzed for VOCs by an ELAP-certified laboratory. Results will be compared to the Commercial Use SCOs for non-PCE constituents and the Protection of Groundwater SCO for PCE, as defined by 6 NYCRR Part 375-6.8. The SVE system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that soil sampling data indicates that the SVE system may no longer be required, a proposal to discontinue the SVE system will be submitted by the remedial party to the NYSDEC and NYSDOH.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the soil sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.2 Groundwater Sampling

Groundwater monitoring will be performed quarterly to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of on-site monitoring wells has been installed to monitor upgradient, downgradient groundwater conditions at the site. The network of on-site wells has been designed based on the following criteria:

- Site wells bisect the existing groundwater table for appropriate triangulation of the groundwater flow; and
- Site wells are screened approximately seven feet into the groundwater.

Table 9 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, two on-site upgradient wells and one on-site downgradient well will be sampled to evaluate the effectiveness of the ISCO groundwater treatment completed as part of the remedial action.

Table 9 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/ latitude)	Well Diameter (inches)	Elevation (above mean sea level)		Depth (from casing elevation)	
				Casing	Surface	Screen Top	Screen Bottom
MW-1	On-Site upgradient	(-73.897157, 40.69829278)	2	80.58	80.58	65	80
MW-2	On-Site downgradient	(-73.897366, 40.698287)	2	80.58	80.58	65	80

MW-3	On-Site upgradient	(-73.897441, 40.698420)	2	80.63	80.63	55	70

Approximately one week prior to sample collection, the potassium permanganate cylinders will be removed to allow for dispersion within the groundwater, as discussed in Section 2.5.3 of this SMP. Groundwater samples will be analyzed for the following by an ELAP certified laboratory:

- VOCs (EPA Method 8260)

As of January 1, 2017 NYSDEC required that emerging contaminant sampling be performed on sites participating in State remedial programs. This sampling protocol includes sampling groundwater for 1,4-dioxane, Perfluorooctanesulfonic acid (PFOS) Perfluorooctanoic acid (PFOA) and other associated perfluorinated chemicals (PFCs). One round of groundwater sampling for emerging contaminants is proposed during the first round of quarterly sampling discussed in this SMP in order to fulfill NYSDEC requirements for State remedial programs.

Site monitoring well locations are illustrated on Figure 5 and were installed in March and April of 2017 as part of Tenen's Remedial Investigation; no new groundwater wells are proposed for installation. Groundwater gauging data indicates the groundwater generally flows south. A groundwater contour map is shown in Figure 5. Monitoring well construction logs are included in Appendix 5 of this document.

If biofouling or silt accumulation occurs in the on-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.3 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Quality Assurance Project Plan provided as Appendix 6 of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the site. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the site to operate and maintain the cover, SSDS and SVE system;
- Will be updated periodically to reflect changes in site conditions or the manner in which the cover, SSDS and SVE system are operated and maintained.

Further detail regarding the Operation and Maintenance of the SSDS and SVE system is provided in Appendix 9 - Operation and Maintenance Manual. A copy of this Operation and Maintenance Manual, along with the complete SMP, is to be maintained at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this SMP.

5.2 Remedial System (or other Engineering Control) Performance Criteria

The site cover, SSDS and SVE system performance criteria are specified in Table 6 (Section 4.3.1) of this SMP.

5.3 Operation and Maintenance of Sub-slab Depressurization System

The following sections provide a description of the operations and maintenance of the SSDS. Cut-sheets and as-built drawings for the SSDS are provided in Appendix 9 - Operations and Maintenance Manual.

5.3.1 System Start-Up and Testing

After the depressurization system was installed, the following was completed:

1. Visual inspection of building slabs for any cracks or holes. If any were identified, they were sealed using caulk.
2. Measurement of the sub-slab pressure at three monitoring points to ensure that the goal of -0.02 in-wc has been achieved.
3. Verification that the system alarms are functioning.

Start-up communication testing results are shown in Table 4 of Section 3.3.2.

The system testing described above will be conducted if, in the course of the SSD system lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.3.2 Routine System Operation and Maintenance

The long-term operation and maintenance program described below shall continue throughout the life cycle of the SSDS to ensure a proper working order. The long-term operation and maintenance program for the major SSDS components includes manufacturer's recommendations for the reinstallation of SSDS components if modifications to the existing system need to be made, inspection procedures, an operation schedule, typical routine maintenance activities and schedules, and troubleshooting.

The alarm system, described below, shall run continuously and only be disconnected for routine maintenance and inspection activities or replacement. The system includes the following:

- vacuum switches, Dwyer BDPA-03-2N
- alarm system, Edwards horn strobes

In case there is a need to relocate a vacuum switch, the new location shall ensure that the vacuum switch remains in close proximity to the riser pipes and is installed correctly. If the vacuum gauge is not indicating a vacuum while the SSDS is on, make sure that the tubing connected to the riser pipe is connected to the low pressure port. High pressure ports on the vacuum gauge/switch should be vented to atmosphere.

The vacuum switch does not require lubrication or periodic servicing. The vacuum gauges are not field serviceable and should be returned to the manufacturer or supplier if repair is needed. Repairs or alterations made to the vacuum switches by others will void the unit's warranty. The vacuum switches are factory calibrated and cannot be recalibrated in the field. The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix 9.

When testing the vacuum alarms, the tubing that connects the vacuum alarms to the riser pipe shall be disconnected and the low set point raised above the current reading. If the vacuum alarms are powered at the time of disconnecting the tubing from the riser pipe, the alarms will go off. The alarms should go back on-line when the tubing is reconnected to the riser pipe. If the building system is in alarm when there is a vacuum present in the riser pipe, inspect the tubing and riser pipe tap to ensure that there are no blockages. If there is a blockage in either the tubing or the riser pipe tap, remove the blockage and retest the vacuum alarm/monitor.

The Plastec P15-2 shall operate continuously and only be turned off for routine maintenance and inspection activities or replacement. The SSDS fan and motor shall not be left on the system piping without electrical power for more than 48 hours due to possible fan failure that could result from this non-operational storage. The SSDS fan unit does not require periodic servicing and should be returned to the manufacturer or supplier for service. Repairs or alterations made to the SSDS fan unit by others will void the unit's warranty. The installation and operating instructions for the SSDS fan unit have been included in Appendix 9.

Inspections of the SSDS components shall include the following:

- Observe visible components (fan, vacuum alarm/monitor, vacuum gauge, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum monitor and gauge tubing and riser pipe taps;
- Verify operation of vacuum monitor by disconnecting tubing from riser pipe and noting if the building notification system goes into alarm mode;
- Verify operation of vacuum gauge by disconnecting tubing from riser pipe and noting if the indicator moves to zero (check high and low pressure ports to see if they are plugged correctly);
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe; and
- Inspect power to fan by operating dedicated switch.

A copy of an Operations and Maintenance Manual specific to the SSDS components is provided in Appendix 9, which will provide further detail on the above.

5.3.3 Non-Routine Operation and Maintenance

Common troubleshooting tips that can be followed if the vacuum gauge/switch will not indicate a vacuum or is sluggish include the following:

- The pressure ports (high or low) are not hooked up correctly;
- The fittings or sensing lines are blocked, pinched or leaking;
- The cover is loose;
- The pressure sensor is improperly located;
- The ambient temperature is too low (below 20-degC)

Table 6 provides a summary and schedule of routine maintenance.

5.3.4 System Monitoring Devices and Alarms

The SSDS has warning devices to indicate that the system is not operating properly. An alarm system was installed to notify the building management if a drop in pressure indicates that the system is not operating as designed. In the event that warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the SSDS will be restarted. Operational problems will be noted in the Periodic Review Report to be prepared for that reporting period.

5.4 Operation and Maintenance of Soil Vapor Extraction System

The following sections provide a description of the operations and maintenance of the SVE. As-built drawings for the SVE are provided in Appendix 9 - Operations and Maintenance Manual. Each of the extraction wells were fitted with valves tying in to the SSDS piping, described in Section 3.3.3 of this SMP.

5.4.1 System Start-Up and Testing

After the SVE system was installed, the following was completed:

1. Visual inspection of building slabs for any cracks or holes. If any were identified, they were sealed using caulk.
2. Measurement of the individual pressure within the outer periphery around each of the extraction wells. A vacuum reading of 0.1 in-wc induced in each of the piezometers is considered an acceptable value.

Start-up communication testing results are shown in Table 5 of Section 3.3.3.

The system testing described above will be conducted if, in the course of the SVE system lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.4.2 Routine System Operation and Maintenance

Each of the extraction wells were fitted with valves tying in to the SSDS piping, described in Section 3.3.3 of this SMP. Routine system operation and maintenance of the overall system is identified in Section 5.3.2 of this SMP.

5.4.3 Non-Routine Operation and Maintenance

Each of the extraction wells were fitted with valves tying in to the SSDS piping, described in Section 3.3.3 of this SMP. Non-routine system operation and maintenance of the overall system is identified in Section 5.3.3 of this SMP.

5.4.4 System Monitoring Devices and Alarms

Each of the extraction wells were fitted with valves tying in to the SSDS piping, described in Section 3.3.3 of this SMP. System monitoring devices and alarms of the overall system is defined in Section 5.3.4 of this SMP.

5.5 Operation and Maintenance of Cover System

The following sections provide a description of the operations and maintenance of the cover system.

Exposure to remaining contamination in soil at the Site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of six-inch thick concrete building slab. The extent of the Site cover is shown on Figure 6. The cover system is present over the entire Site and the adjacent units (i.e., there are no uncapped areas). The cover system is a permanent engineering control for the Site.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

Flood Plain: The Federal Emergency Management Agency (FEMA) flood insurance rate map for the Site (Map Number 3604970209F) indicates that the Site and surrounding area is not located within the 0.2% annual chance floodplain (500-year flood).

Site Drainage and Storm Water Management: The Site occupies less than one acre of land and a permit for storm water discharges is not required.

Erosion: No evidence of erosion has been observed at the Site. Additionally, as described above, given the size of the Site, a storm water management system was not required to manage Site runoff.

High Wind: There are no remedial systems susceptible to high wind damage present at the Site.

Electricity: The SSDS and SVE system would be susceptible to power loss and/or dips/surges in voltage during severe weather events, including lightning strikes, and the associated impact on Site equipment and operations.

Spill/Contaminant Release: The SSDS and SVE system are not susceptible to a spill or other contaminant release due to storm-related damage caused by flooding, erosion, high winds, loss of power etc.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2. Remedial Systems

Remedial systems will be operated properly considering the current site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables.

Spent materials will be sent for recycling, as appropriate. In the event that air treatment is required for the blower effluent, efforts will be made to conserve material and resources.

6.2.3 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;

- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix 8. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 10 and summarized in the Periodic Review Report.

Table 10: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Periodic Review Report	Annually

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (groundwater, soil etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);

- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix 4 - Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A site evaluation, which includes the following:

  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;

  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;

  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;

  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

  - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.

  - The overall performance and effectiveness of the remedy.

- A performance summary for all treatment systems at the site during the calendar year, including information such as:

  - The number of days the system operated for the reporting period;

  - The average, high, and low flows per day;

  - The contaminant mass removed;

  - A description of breakdowns and/or repairs along with an explanation for any significant downtime;

  - A description of the resolution of performance problems;

  - Alarm conditions;

  - Trends in equipment failure;

- A summary of the performance, effluent and/or effectiveness monitoring; and
- Comments, conclusions, and recommendations based on data evaluation.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*

- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices;*
- *The information presented in this report is accurate and complete; and*
- *The assumptions made in the qualitative exposure assessment remain valid.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Matthew M. Carroll am certifying as Owner's/Remedial Party's Designated Site Representative for the site."

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3, upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general

outline for the RSO report is provided in Appendix 10. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

8.0 REFERENCES

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

EBI Consulting, Inc. Phase I Environmental Site Assessment. 1846 Decatur Street, Queens, NY 11385. Redacted May 10, 2016. EBI 2016 (1).

EBI Consulting, Inc. Phase II Environmental Site Assessment. 18-46 Decatur Street, Queens, NY 11385. June 3, 2016. EBI 2016 (2).

New York State Department of Environmental Conservation, Division of Environmental Remediation. DER Technical Guidance for Site Investigation and Remediation (DER-10). NYSDEC 2010.

New York State Department of Environmental Conservation DEC Policy. Commissioner's Policy 51 – Soil Cleanup Guidance. October 21, 2010. NYSDEC 2010.

New York State Department of Environmental Conservation. Technical Administrative Guidance Memorandum (TAGM) 3028, "Contained-In" Criteria for Environmental Media. November 30, 1992. NYSDEC 1992.

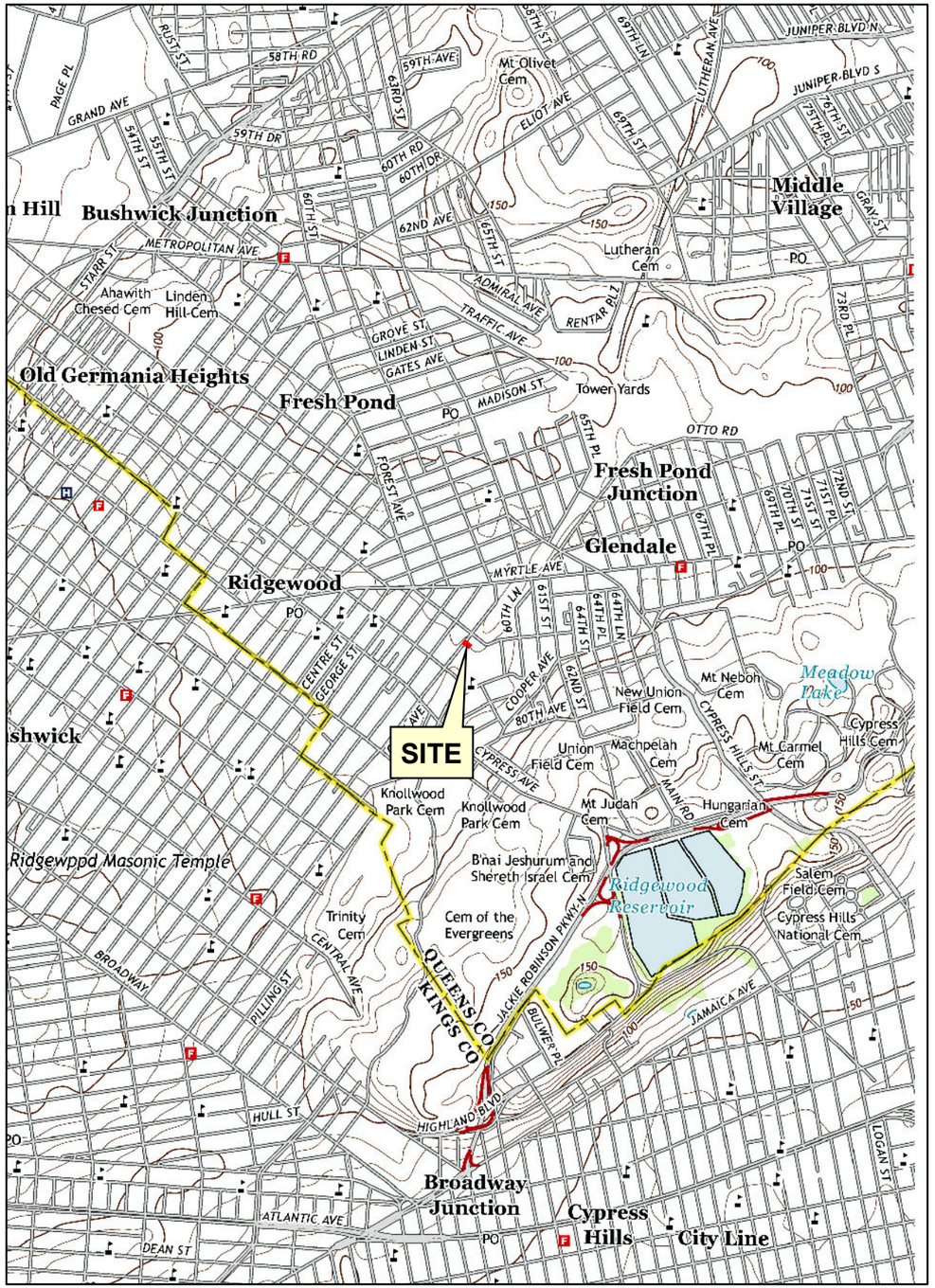
New York State Department of Health. Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. NYSDOH 2006.

Tenen Environmental LLC. Remedial Investigation Work Plan. 18-46 Decatur Street, Ridgewood, Queens, NY 11385. February 2017 Tenen 2017.

Tenen Environmental LLC. Remedial Investigation Report. 18-46 Decatur Street, Ridgewood, Queens, NY 11385. August 2017 Tenen 2017.

Tenen Environmental LLC. Remedial Action Work Plan. 18-46 Decatur Street, Ridgewood, Queens, NY 11385. March 2018 Tenen 2018.

Figures



Basemap: USGS Brooklyn, NY, 2013
http://www.usgs.gov

Site Location

0 1,000 2,000 4,000 Feet

http://gis.nyc.gov/taxmap/map.htm

Department of Finance Digital Tax Map

0 50 100 200 Feet

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2016 v2

0 50 100 200 Feet

Client

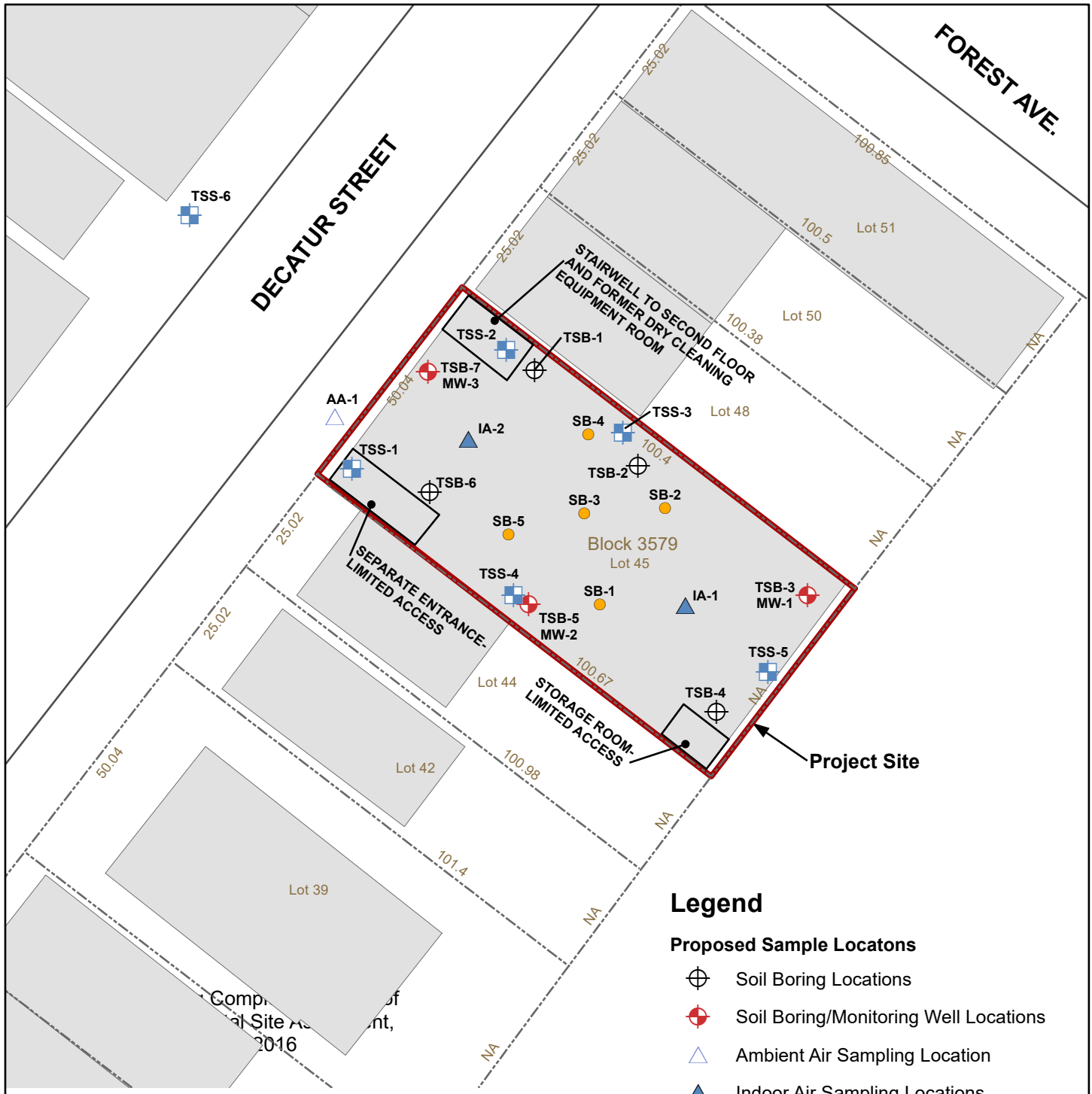
18-46 Decatur Street
Ridgewood, New York
Block 3579, Lot 45

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	KM	May 2017	As Noted

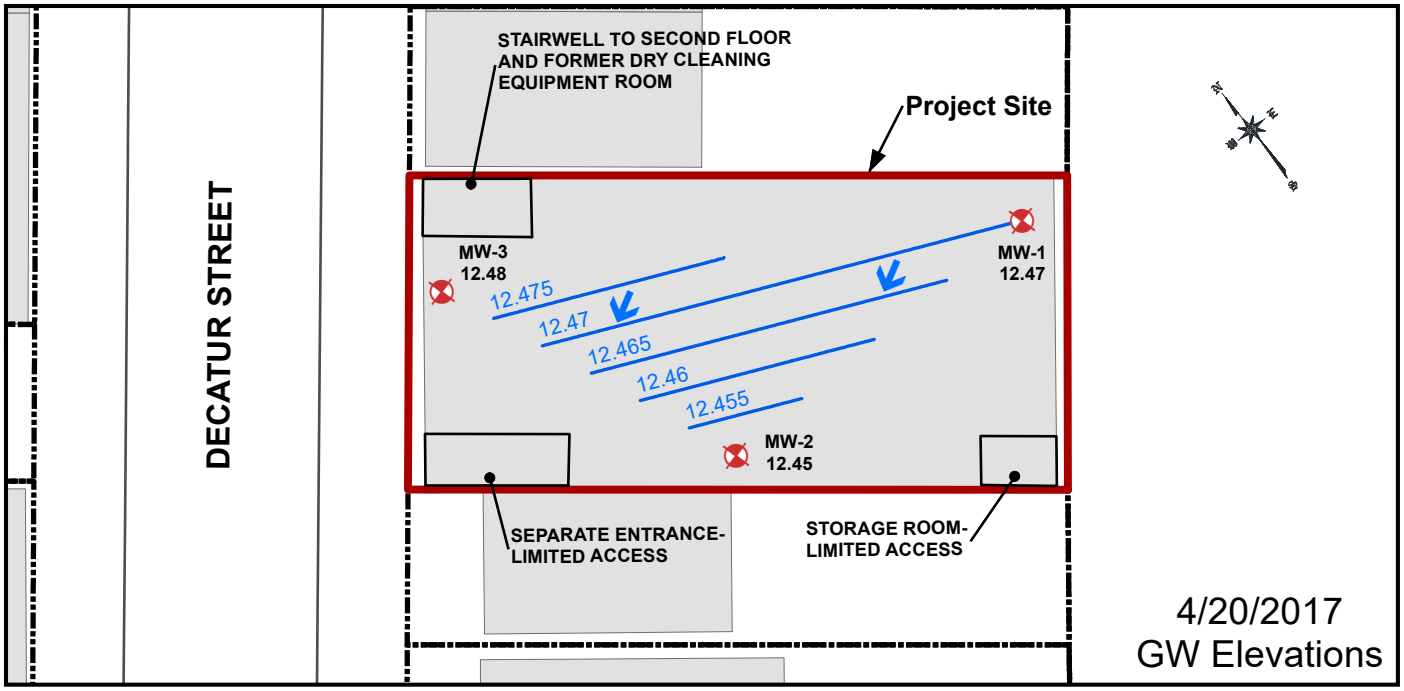
Drawing Title: **Site Location Map**

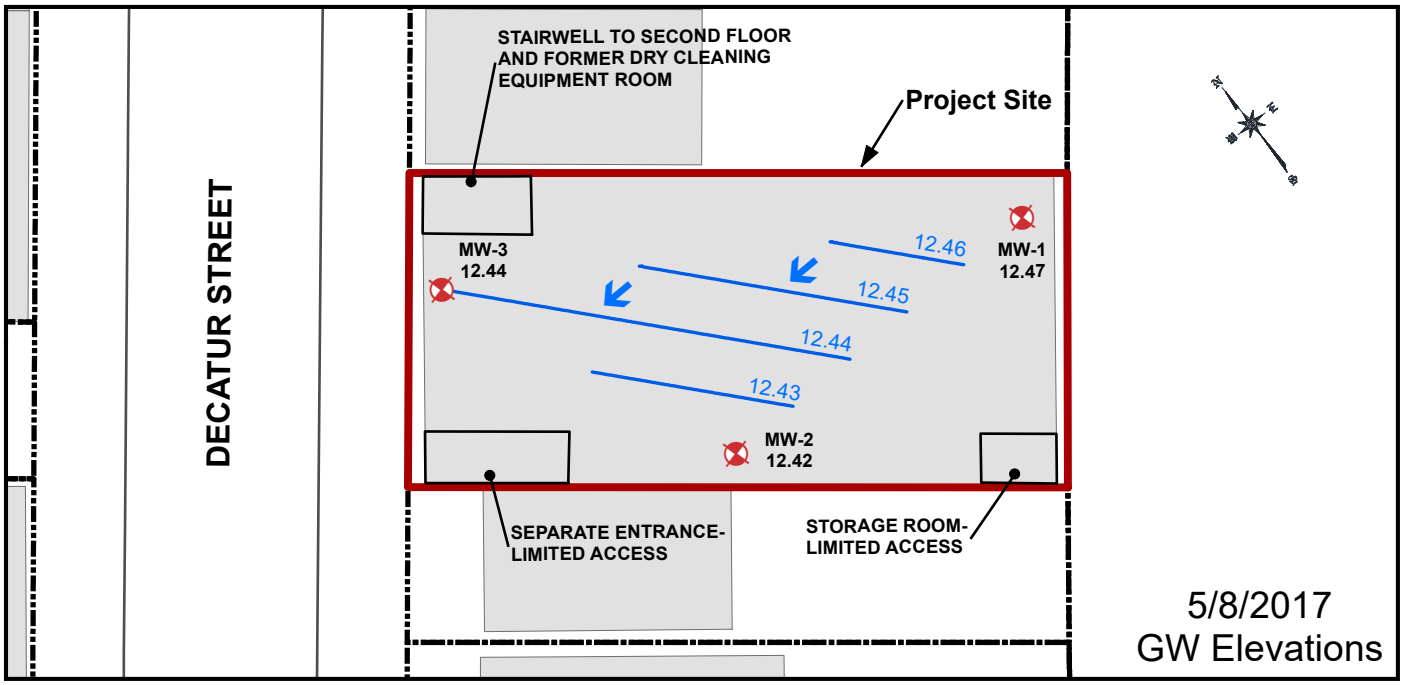
Drawing No: **Figure 1**



Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

Drawing No. Figure 2	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title Site Layout Map	Date July 2018		
	Scale As Noted		





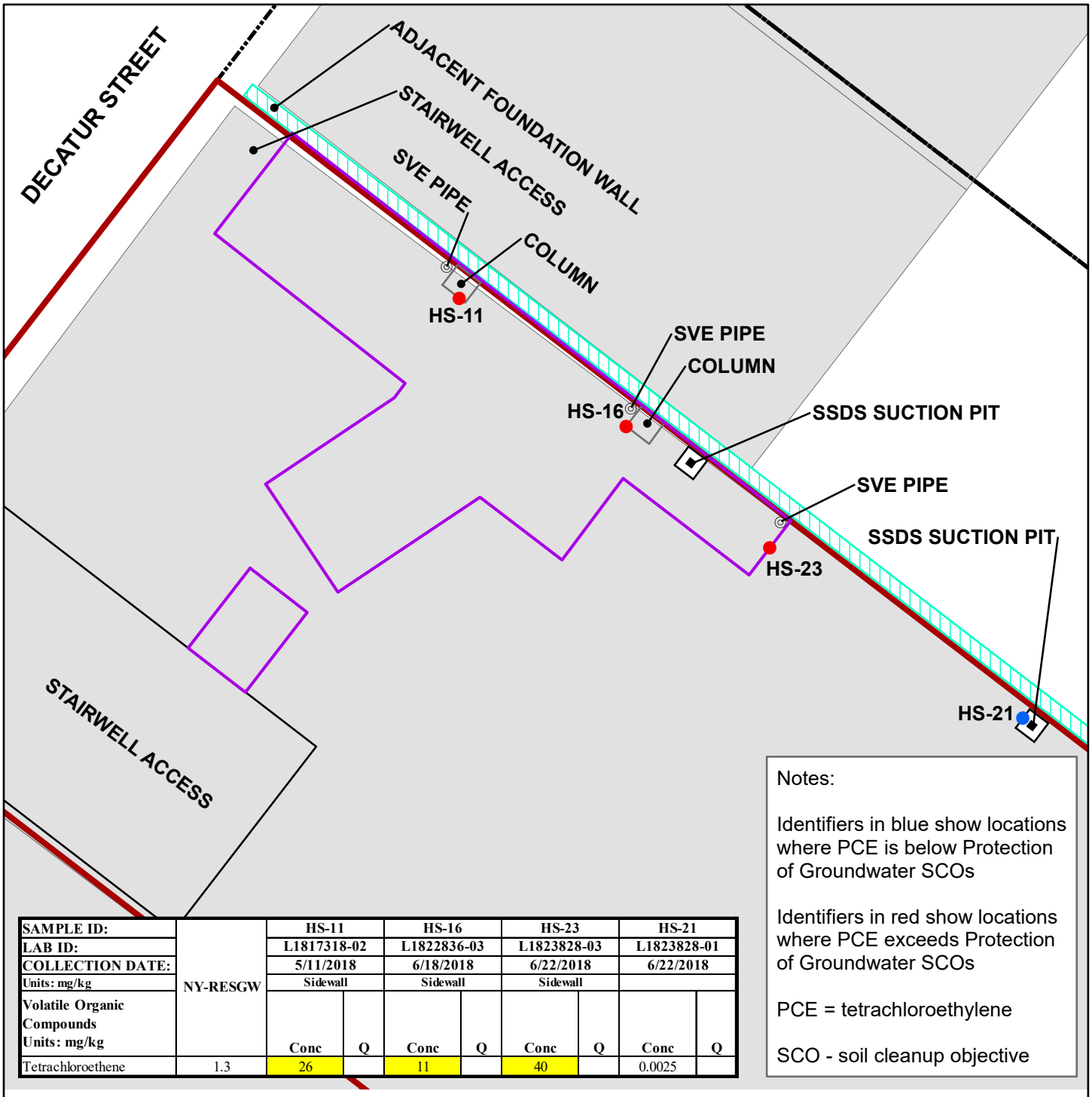
Feet
0 15 30 60

Legend

- Monitoring Well Location
- Groundwater Flow Direction
- Groundwater Elevation Contour

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of IT and Telecommunications, GIS Division
Groundwater contours interpolated with the aid of ESRI ArcGIS Spatial Analyst

Drawing No.: Figure 3	Drawn By: LM	TENEN ENVIRONMENTAL	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By: KM	Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
Drawing Title: Groundwater Contour Map	Date: July 2018		
	Scale: As Noted		



SAMPLE ID:		HS-11		HS-16		HS-23		HS-21	
LAB ID:		L1817318-02		L1822836-03		L1823828-03		L1823828-01	
COLLECTION DATE:		5/11/2018		6/18/2018		6/22/2018		6/22/2018	
Units: mg/kg	NY-RESGW	Sidewall		Sidewall		Sidewall			
Volatile Organic Compounds Units: mg/kg		Conc	Q	Conc	Q	Conc	Q	Conc	Q
Tetrachloroethene	1.3	26		11		40		0.0025	

Notes:

Identifiers in blue show locations where PCE is below Protection of Groundwater SCOs

Identifiers in red show locations where PCE exceeds Protection of Groundwater SCOs

PCE = tetrachloroethylene

SCO - soil cleanup objective

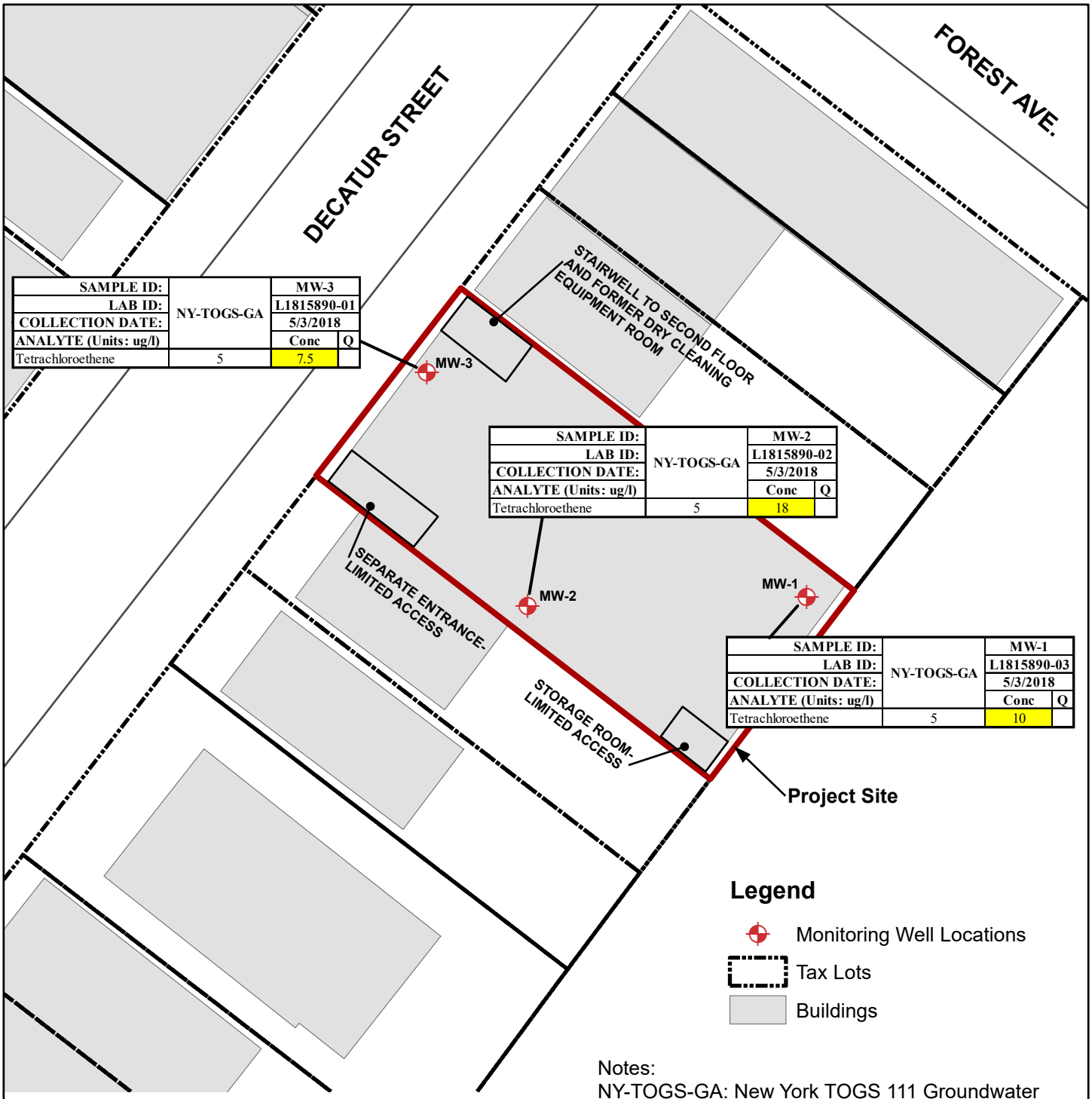
Feet
0 5 10 20

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

Legend

- Sidewall Sample Location
- Excavation Extents

Drawing No.: Figure 4	Drawn By: LM	TENEN ENVIRONMENTAL	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By: KM	Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
Drawing Title: Remaining Soil Sample Exceedances	Date: July 2018		
	Scale: As Noted		



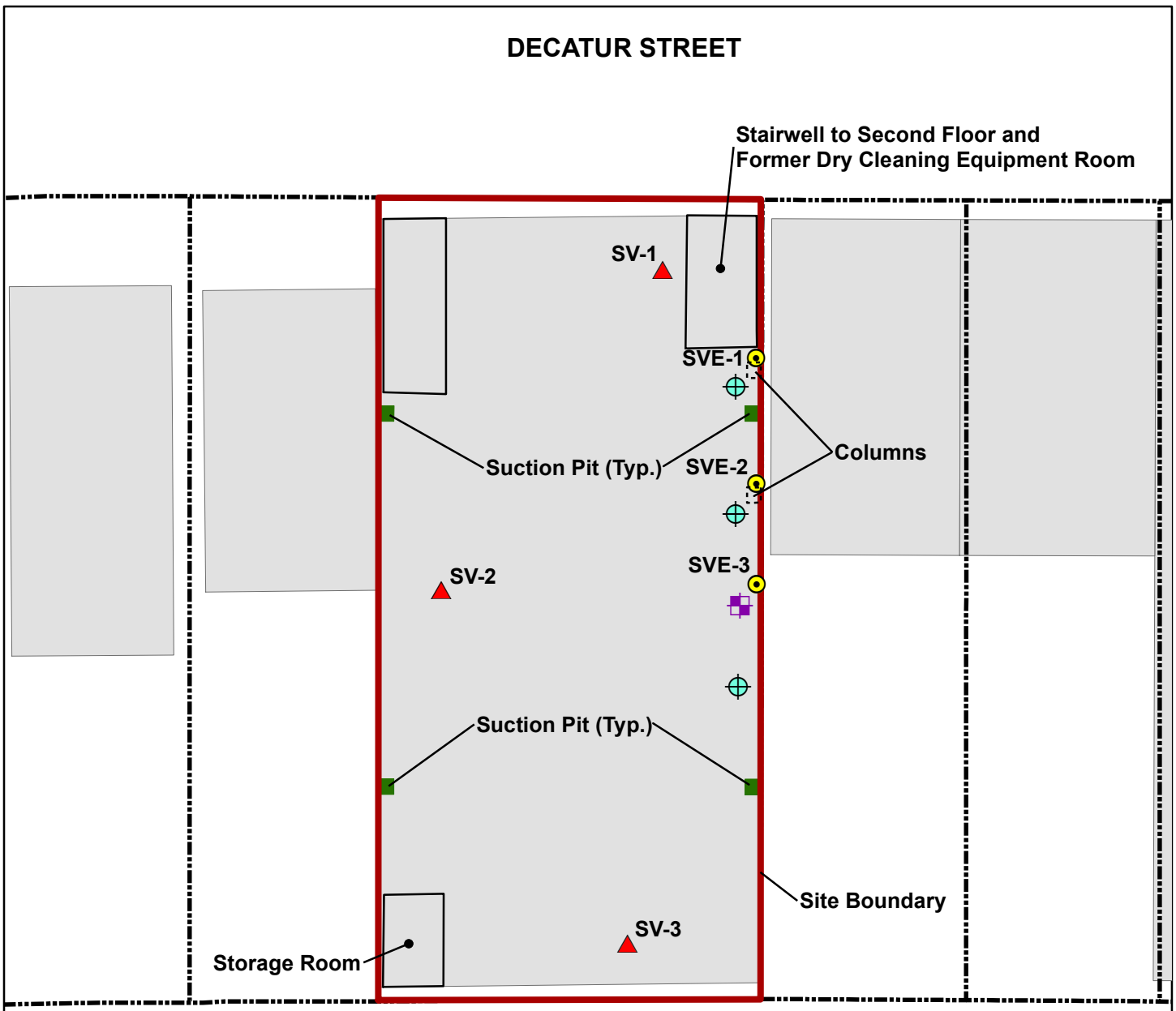
Notes:
NY-TOGS-GA: New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004.

Cells highlighted in yellow indicate concentrations above the NY-TOGS-GA

Results are in micrograms per liter (µg/L)

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

Drawing No. Figure 5	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title Remaining Groundwater Sample Exceedances	Date July 2018		
	Scale As Noted		



Legend

- SVE Wells
- Piezometer
- Soil Vapor Monitoring Point
- Shallow Soil Sample Location
- Suction Pit Location
- Extent of 6" Concrete Building Slab on Grade
- Buildings
- Tax Lots

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

0 10 20 40 Feet

Drawing No. Figure 6	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title Engineering Controls Location (Composite Cover, SSDS, SVE)	Date October 2018		
	Scale As Noted		

APPENDIX 1 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Anthony Montalbano; BMHQ Realty LLC	(718) 381-5800, anthony@forestbuilderssupply.com
Matthew Carroll, P.E.; Remedial Engineer	(646) 606-2332, mcarroll@tenen-env.com
Ronnie Lee, P.E.; NYSDEC Project Manager	(518) 402-9767, ronnie.lee@dec.ny.gov
Jane O'Connell; Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E.; Chief, Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov
Michael Bogin; Sive, Paget & Riesel	(212) 421-2150, mbogin@sprlaw.com

APPENDIX 2 – EXCAVATION WORK PLAN (EWP)

2-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix 1.

Table 1: Notifications*

Ronnie Lee, P.E., NYSDEC Project Manager	(518) 402-9767, ronnie.lee@dec.ny.gov
Jane O'Connell, Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control Section	(518)402-9543, kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;

- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 7 of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Section 2-7 of this Appendix.

2-3 SOIL STAGING METHODS

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

2-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

2-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: starting from Decatur Street, which is a one-way street, trucks will make a right on Myrtle Avenue and continue on Jamaica Avenue. Trucks will continue towards the Van Wyck Expressway (Interstate-678).

. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

2-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

2-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

2-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

2-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the RAWP. The existing cover system is comprised of a minimum of a six-inch concrete building slab. If the type of

cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

2-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards will be in compliance with (1) the lower of the Protection of Groundwater or Commercial Use SCOs and (2) all federal, state and local rules and regulations for handling and transport of material. .Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

2-11 STORMWATER POLLUTION PREVENTION

Stormwater pollution prevention practices are not required.

2-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

2-13 COMMUNITY AIR MONITORING PLAN

Air sampling stations based on generally prevailing wind conditions will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and downwind monitoring stations.

Exceedances of action levels listed in the will be reported to NYSDEC and NYSDOH Project Managers.

A summary of the CAMP plan is included in Appendix 11.

2-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

2-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

2-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX 3
RESPONSIBILITIES of
OWNER and REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the 18-46 Decatur Street site (the "site"), number C241194, is the site owner, which is also the Remedial Party. The owner is currently listed as: BHMQ Realty LLC (the "owner").

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is: BHMQ Realty LLC.

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3 - Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3 - Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) The owner will maintain the cover, SSDS and SVE system on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

11) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 - Notifications] of the SMP.

7) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

8) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX 4 – ENVIRONMENTAL EASEMENT

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2018101600788001001E368F

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 10**

Document ID: 2018101600788001 Document Date: 09-19-2018 Preparation Date: 10-16-2018
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
MWALKER
560 LEXINGTON AVE
15TH FLOOR
NEW YORK, NY 10022
646-378-7297
MWALKER@SPRLAW.COM

RETURN TO:
MWALKER
560 LEXINGTON AVE
15TH FLOOR
NEW YORK, NY 10022
646-378-7297
MWALKER@SPRLAW.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
QUEENS	3579	45	Entire Lot	1846 DECATUR

Property Type: COMMERCIAL REAL ESTATE Easement

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year_____ Reel____ Page_____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
BMHQ REALTY LLC
1846 DECATUR STREET
RIDGEWOOD, NY 11385

GRANTEE/BUYER:
PEOPLE OF STATE OF NY BY COMM'R DEPT OF ENV. CONS
625 BROADWAY
ALBANY, NY 12207-2942

FEES AND TAXES

Mortgage :		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	82.00
Affidavit Fee:	$	0.00

Filing Fee: $ 0.00

NYC Real Property Transfer Tax: $ 0.00

NYS Real Estate Transfer Tax: $ 0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 10-19-2018 16:21
City Register File No.(CRFN): **2018000349419**

City Register Official Signature

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 19th day of September, 2018, between Owner(s) BMHQ Realty LLC, having an office at c/o Phoenix Building Supply, 74-02 Forest Avenue, Ridgewood, New York 11385, County of Queens, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 18-46 Decatur Street in the City of New York, County of Queens and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 3579 Lot 45, being the same as that property conveyed to Grantor by deed dated May 12, 2018 and recorded in the City Register of the City of New York as CRFN # 2018000279907. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.116 +/- acres, and is hereinafter more fully described in the Land Title Survey dated June 11, 2018 prepared by Donald R. Stedge, P.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is

extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C241194-01-17, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining

contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation

pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C241194
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and

communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

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IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

BMHQ Realty LLC:

By: _____

Print Name: _____

Title: _____ Date: _____

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Queens)

On the 4th day of SEPT., in the year 2018, before me, the undersigned, personally appeared BERND MESSING, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

ALFRED ZIEGLER
Notary Public, State of New York
No. 01ZI6379129
Qualified in Queens County
Commission Expires August 06, 2022

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 19th day of September, in the year 2018, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2022

SCHEDULE "A" PROPERTY DESCRIPTION

18-46 Decatur Street
Legal Description – Environmental Easement

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough and County of Queens, City and State of New York, known and designated as Lot Number 149, 150 as shown on a certain map entitled, "Map of Property belonging to the Estate of John H. Rathjan, deceased, situated in the Town of Newtown, Queens County, New York, surveyed December 1, 1886, by Nostrand & Debevoise, B.E. and C.S." and filed in the Queen's County Clerk's (now Registrar's) Office 7/29/1889, as Map No. 179, which lots when taken together as one parcel are more particularly bounded and described as follows, according to the U.S. Standard of Measurement:

BEGINNING at a point on the Southeasterly side of Decatur Street, distant 425.48 feet Northeasterly from the corner formed by the intersection of the Southeasterly side of Decatur Street with the Northeasterly side of Seneca Avenue, said point of beginning being distant 175 feet according to local Standard of Measurement, Northeasterly from the corner formed by the intersection of the Southeasterly side of Decatur Street with the Northeasterly side of Rathjan Avenue as shown on the above filed map;

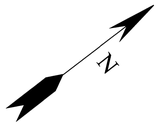
RUNNING THENCE Northeasterly along the Southeasterly side of Decatur Street, a distance of 50.04 feet;

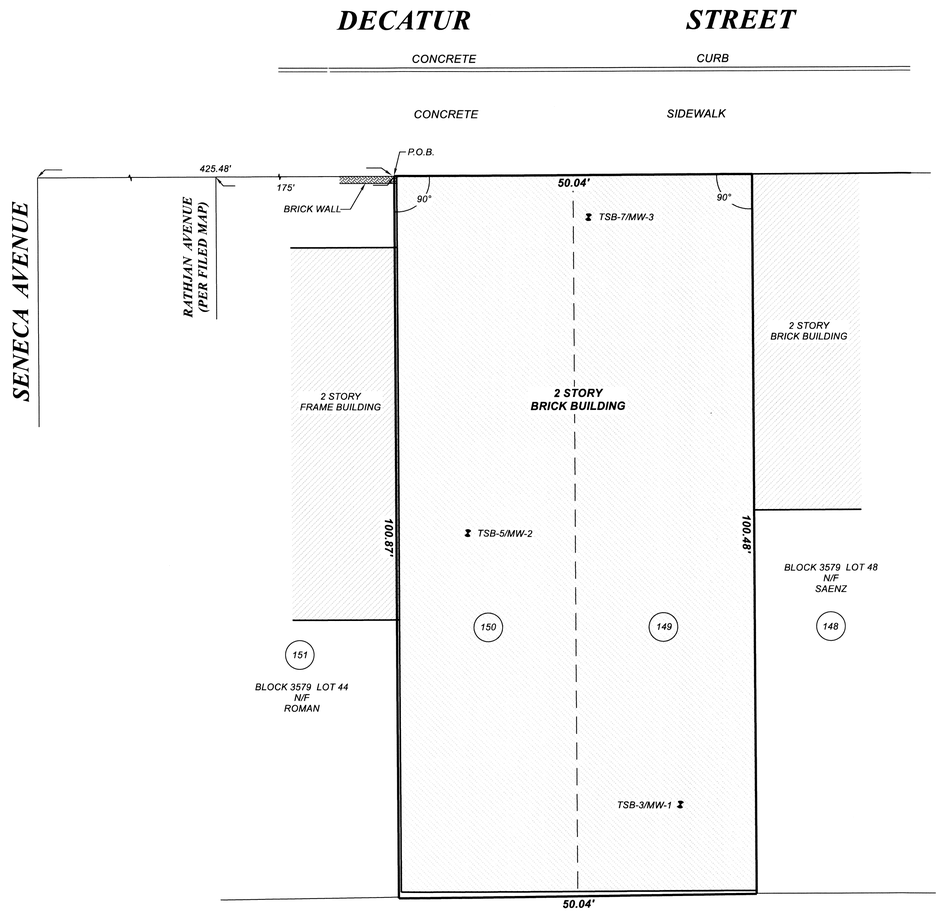
RUNNING THENCE Southeasterly at right angles to Decatur Street, a distance of 100.48 feet to the Northwesterly line of the right of way of the Long Island Railroad (N.Y. and Manhattan Division);

RUNNING THENCE Southwesterly along the last mentioned railroad right of way, a distance of 50.04 feet; and

THENCE Northwesterly at right angles to Decatur Street, a distance of 100.87 feet to the Southeasterly side of Decatur Street, at the point or place of BEGINNING.

Containing 5,038 square feet or 0.116 acre of land more or less





METES AND BOUNDS DESCRIPTION

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, KNOWN AND DESIGNATED AS LOT NUMBERS 149, 150 AS SHOWN ON CERTAIN MAP ENTITLED, "MAP OF PROPERTY BELONGING TO THE ESTATE OF JOHN H. RATHJAN, DECEASED, SITUATED IN THE TOWN OF NEWTOWN, QUEENS COUNTY, NEW YORK, SURVEYED DECEMBER 1, 1886 BY NOSTRAND & DEBEVOISE, B.E. AND C.S." AND FILED IN THE QUEENS COUNTY CLERK'S (NOW REGISTER'S) OFFICE 7/29/1889, AS MAP NO. 179, WHICH LOTS WHEN TAKEN TOGETHER AS ONE PARCEL ARE MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, ACCORDING TO THE U.S. STANDARD OF MEASUREMENT:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF DECATUR STREET, DISTANT 425.48 FEET NORTHEASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF DECATUR STREET WITH THE NORTHEASTERLY SIDE OF SENECA AVENUE, SAID POINT OF BEGINNING BEING DISTANT 175 FEET ACCORDING TO LOCAL STANDARD OF MEASUREMENT, NORTHEASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF DECATUR STREET WITH THE NORTHEASTERLY SIDE OF RATHJAN AVENUE AS SHOWN ON THE ABOVE FILED MAP;

RUNNING THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY SIDE OF DECATUR STREET, A DISTANCE OF 50.04 FEET;

RUNNING THENCE SOUTHEASTERLY AT RIGHT ANGLES TO DECATUR STREET, A DISTANCE OF 100.48 FEET TO THE NORTHWESTERLY LINE OF THE RIGHT OF WAY OF THE LONG ISLAND RAILROAD (N.Y. AND MANHATTAN DIVISION);

RUNNING THENCE SOUTHWESTERLY ALONG THE LAST MENTIONED RAILROAD RIGHT OF WAY, A DISTANCE OF 50.04 FEET; AND

THENCE NORTHWESTERLY AT RIGHT ANGLES TO DECATUR STREET, A DISTANCE OF 100.87 FEET TO THE SOUTHEASTERLY SIDE OF DECATUR STREET, AT THE PLACE OR POINT OF BEGINNING.

CONTAINING 5,038 SQUARE FEET OR 0.116 ACRE OF LAND MORE OR LESS

LEGEND	
⧗	MONITORING WELL

NOTES:

-TAX LOT: BLOCK 3579 LOT 45

-AREA: 5,038 S.F. = 0.116 ACRE

-DATE OF FIELD SURVEY: APRIL 20, 2017

-HORIZONTAL AND VERTICAL DATUM: ASSUMED

-SUBJECT TO THE FINDINGS OF AN UP TO DATE ABSTRACT OF TITLE

-UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S EMBOSSED SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW

-ONLY COPIES OF THIS MAP BEARING THE LICENSED LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID, TRUE COPIES

-UNDERGROUND UTILITIES SUCH AS SEWERAGE DISPOSAL SYSTEMS, DRAINAGE, WATER, GAS, AND/OR ELECTRIC LINES, ETC..., ARE NOT SHOWN AND ARE NOT CERIFIED TO

WELL ELEVATION TABLE

WELL I.D.	TOP OF CASING	TOP OF PVC
TSB-3/MW-1	80.58	80.07
TSB-5/MW-2	80.58	80.27
TSB-7/MW-3	80.63	80.24

10' 0 10' 20'

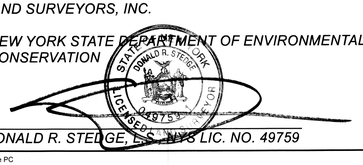
SCALE: 1" = 10'

0 10 Ft/in 40'
Centimeters Meters = CM/100

SCALE: 1 CM = 1.20 METERS

I HEREBY CERTIFY TO THE PARTIES LISTED BELOW THAT THIS MAP IS BASED ON AN ACTUAL FIELD COMPLETED ON JUNE 11, 2018 AND WAS PREPARED IN ACCORDANCE WITH THE CURRENT EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADAPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC.

-NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION



DONALD R. STEDGE, L.S. NYS LIC. NO. 49759

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW. THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT derweb@dec.ny.gov

ENVIRONMENTAL EASEMENT PREPARED FOR

1846 DECATUR STREET
QUEENS, NY

QUEENS COUNTY — NEW YORK
SCALE" 1" = 10' — JUNE 11, 2018

DONALD R. STEDGE, P.L.S.
112 MURRAY AVENUE
GOSHEN, NY 10924
(845) 325-9734

JOB NO. 1615

Traverse PC

APPENDIX 5 – MONITORING WELL BORING AND CONSTRUCTION LOGS

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL

		Boring No.	**TSB-1**
		Sheet 1	**of 1**
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**3/30/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Clear, mid 50 deg-F**		
Observer:	**Kristen Meisner, Sara Babyatsky**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	Soil Description
1	0.6	100%	TSB-1 (0-2)	0-0.5: Concrete. 0.5-5: TILL (fine to medium brown sand).
2				
3	4.5			
4				
5	1.4			
6	0.8	100%		5-10: TILL (fine to medium brown sand, cobbles).
7	1.7			
8	3.4			
9	3.8			
10	0.9			
11	0.9	80%	TSB-1 (10-12)	10-15: SAA. REFUSAL @14'.
12	6.7			
13	4.6		TSB-1 (12-14)	
14	1.6			EOB: 14 ft-bg.
15				

Notes:
Odor was noted from the boring hole during advancement.
Sample TSB-1 (Surface) taken from concrete chips @ bottom of slab.
Encountered REFUSAL between 4 and 8 ft-bg. Borings were moved to new locations within a 2' radius.

Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL		**Boring No.**	**TSB-2**
		Sheet 1	**of 1**
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**3/29/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Clear, mid 50 deg-F**		
Observer:	**Kristen Meisner**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	Soil Description
1	1.6	90%	TSB-2 (0-2)	0-5: TILL (fine to medium brown sand with cobbles).
2				
3	2.8			
4				
5	1.1			
6	2.6	100%	TSB-2 (6-8)	5-10: SAA.
7	2.6			
8				
9	1.9			
10				
11		100%		10-15: SAA.
12	0.0			
13				
14	0.3			
15				
16	0.7	100%		15-20: SAA.
17				
18	0.0			
19				
20				
21	0.9	100%		20-25: SAA.
22				
23	0.0			
24				
25				
26	0.9	80%		25-30: SAA. Cobbles at 29'.
27				
28	0.0			
29				
30				
31		60%		30-35: SAA. Large cobbles. REFUSAL @33'.
32			TSB-2 (31-33)	
33	0.0			EOB: 33 ft-bg.
34				
35				

Notes:
REFUSAL @ 11'. Boring was moved 2' north and continued @ 10'.

Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL

		Boring No.	**TSB-3/MW-1**
		Sheet 1	**of** 1
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe and Sonic Drill
Date:	**3/30/2017 and 4/7/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Clear, mid 50 deg-F**		
Observer:	**Kristen Meisner, Sara Babyatsky**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	GW Monitoring Well Intervals	GW Sample/DTW	Soil Description
1			TSB-3 (0-2)	Riser (0-65)		0-0.5: Concrete. 0.5-5: FILL (fine to medium brown sand).
2						
3	0.0	60%				
4						
5						
6						5-10: SAA.
7						
8		100%				
9			TSB-3 (8-10)			
10	0.4					
11	0.9					10-15: SAA. REFUSAL @13' using Geoprobe.
12	6.7		(8-			
13	4.6	60%	TSB-3 10)			
14	1.6					EOB: 13 ft-bg.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
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36						
37						
38						
39						
40						

41 42 43 44 45						
46 47 48 49 50						
51 52 53 54 55						
56 57 58 59 60						
61 62 63 64 65						
66 67 68 69 70				Screen (65-80)		
71 72 73 74 75						
76 77 78 79 80			TSB-3 (78-80)			EOB: 80 ft-bg.

Notes:
REFUSAL @ 10'. Boring moved 2' to the north.
MS/MSD sampled from TSB-3 (8-10)

Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL

		Boring No.	**TSB-4**
		Sheet 1	**of 1**
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**3/30/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Clear, mid 50 deg-F**		
Observer:	**Kristen Meisner, Sara Babyatsky**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	Soil Description
1 - 5	0.0	80%	TSB-4 (0-2)	0-0.5: Concrete. 0.5-5: TILL (fine to medium brown sand).
6 - 10	0.3	90%	TSB-4 (8-10)	5-10: TILL (fine to medium tan and brown sand, cobbles).
11 - 15	0.0	100%		10-15: SAA.
16 - 20	0.0	70%	TSB-4 (17-19)	15-20: SAA. REFUSAL @19'. EOB: 19 ft-bg.

Notes:

Legend:

DTW - Depth to Water
EOB - End of Boring
ft-bg - Feet Below Grade
PID - Photoionization Detector
SAA - Same as Above
NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL

		Boring No.	**TSB-5/MW-3**
		Sheet 1	**of** 1
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe and Sonic Drill
Date:	**3/28/2017 and 4/5/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Rain, Low 40 deg-F**		
Observer:	**Kristen Meisner, Alex Kuhn**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	GW Monitoring Well Intervals	GW Sample/DTW	Soil Description
1						0-0.5: Concrete slab.
2						0.5-1: FILL (ash, sand, wood).
3	0.0	100%	TSB-5 (1-3)			1-5: TILL (fine to medium brown sand).
4						
5						
6						5-10: TILL (fine to medium brown sand, cobbles).
7	0.9	100%				
8						
9	1.5		TSB-5 (8-10)			
10						
11			TSB-5 (10-12)			10-15: SAA.
12						
13	0.0	100%				
14						
15						
16						15-20: TILL (fine brown sand).
17						
18	0.0	100%				
19						
20						
21						20-25: TILL (fine to medium brown sand, some cobbles).
22						
23	0.0	100%				
24						
25						REFUSAL @ 25' using Geoprobe.
26						
27						
28						
29						
30						
31				Riser (0-65)		
32						
33						
34						
35						
36						
37						
38						
39						
40						

41 42 43 44 45						
46 47 48 49 50						
51 52 53 54 55						
56 57 58 59 60						
61 62 63 64 65						
66 67 68 69 70				Screen (65-80)		
71 72 73 74 75						
76 77 78 79 80		10%	TSB-5 (78-80)			75-80: Coarse sand, rock at the bottom of boring. EOB: 80 ft-bg.

Notes:

Legend:

DTW - Depth to Water
EOB - End of Boring
ft-bg - Feet Below Grade
PID - Photoionization Detector
SAA - Same as Above
NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL		**Boring No.**	**TSB-6**
		Sheet 1	**of 1**
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**3/29/17**	**Soil Sampling Method:**	Acetate liners
Weather:	**Clear, mid 50 deg-F**		
Observer:	**Kristen Meisner**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	Soil Description
1	3.6	100%	TSB-6 (0-2)	0-0.5: Concrete. 0.5-5: TILL (fine to medium brown sand).
2				
3				
4	1.6			
5	1.5			
6	13.5	100%	TSB-6 (5-7)	5-10: SAA.
7				
8	11.8			
9				
10	7.5			
11	10.3	100%		10-15: SAA.
12				
13	8.3			
14				
15	10.8			
16	1.6	80%		15-20: SAA. REFUSAL @19'.
17				
18	5.8		TSB-6 (17-19)	
19	3.6			EOB: 19 ft-bg.
20				

Notes:

Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix 1- Boring Logs
Remedial Investigation Report
BCP# C241194

TENEN ENVIRONMENTAL

		Boring No.	**TSB-7/MW-3**
		Sheet 1	**of 1**
Site:	**18-46 Decatur Street - Brooklyn, NY**	**Drilling Method:**	Sonic Drill
Date:	**3/13/17 and 3/27/2017**	**Soil Sampling Method:**	Acetate liners
Weather:	**Rain, Low 50 deg-F**		
Observer:	**Mohamed Ahmed, Kristen Meisner, Alex Kuhn**	**Driller :**	ADT

Depth (feet)	PID Reading (ppm)	Soil Recovery	Soil Samples	GW Monitoring Well Intervals	GW Sample/DTW	Soil Description
1		100%		Riser (0-55)		0-2: Concrete slab.
2						
3	0.3					3-5: TILL (brown sand and cobbles).
4			TSB-7 (3-5)			
5						
6		100%				5-10: SAA.
7						
8	155.6					
9			TSB-7 (8-10)			
10						
11	5.4	100%				10-15: SAA.
12						
13						
14						
15	24.8					
16	155.6	100%				15-20: SAA.
17						
18						
19	293.0					
20						
21		100%				20-25: SAA.
22						
23						
24						
25	0.2					
26	0.8	100%				25-30: SAA.
27	16.1					
28						
29			TSB-7 (28-30)			
30	18.2					
31	0.1	100%				30-35: TILL (coarse to medium sand).
32						
33	0.0 0.9					
34						
35	0.5					

36 37 38 39 40	0.0	100%				35-40: SAA.
41 42 43 44 45	0.0	100%				40-45: SAA.
46 47 48 49 50	0.0	100%				45-50: SAA.
51 52 53 54 55	0.0	100%				50-55: SAA.
56 57 58 59 60	0.0	100%		Screen (55-70)		55-60: SAA, wet.
61 62 63 64 65	0.0	100%				60-65: SAA, wet.
66 67 68 69 70	0.0	100%	TSB-7 (68-70)			65-70: SAA, wet. EOB: 70 ft-bg.

Notes:

Legend:

DTW - Depth to Water
EOB - End of Boring
ft-bg - Feet Below Grade
PID - Photoionization Detector
SAA - Same as Above
NR - not recorded

APPENDIX 6 – QUALITY ASSURANCE PROJECT PLAN

Appendix C
Quality Assurance Project Plan

for
18-46 Decatur Street
Site Management Plan

18-46 Decatur Street
Ridgewood, Queens, New York 11385
BCP Site # C241194

Submitted to:
New York State Department of Environmental Conservation
Remedial Bureau B, Section C
Division of Environmental Remediation
625 Broadway, Albany, NY 12233-7016

Prepared for:

Phoenix Building Supply Inc.
74-02 Forest Avenue
Ridgewood, Queens, New York, 11385

Prepared by:

TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

September 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the Site Management Plan (SMP) prepared for 18-46 Decatur Street (the Site).

The Site is located at 18-46 Decatur Street in Queens, New York. The Site includes one rectangular-shaped parcel, identified by the New York City Department of Finance Office as Block 3579, Lot 45 and totaling approximately 0.11 acres. The Site is located approximately 100 feet south of the intersection of Decatur Street and Forest Avenue in Queens Community Board 5.

The Site is currently improved with a two-story, warehouse building with offices on the second floor, with a net rentable area of approximately 9,020 square feet. There is no basement present beneath the existing building. The existing building was reportedly constructed in 1953. The Site location and layout are shown on Figures 1 and 2.

1.1 Project Scope and QAPP Objective

The proposed scope of work includes the following:

- Quarterly collection of groundwater samples;
- One round of sampling for emerging contaminants;
- Installation of pressure point monitoring locations;
- Quarterly sub-slab depressurization system (SSDS) pressure point monitoring; and,
- Collection of one effluent air sample.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of the Remedial Investigation Work Plan. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP addresses the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

2.0 PROJECT ORGANIZATION

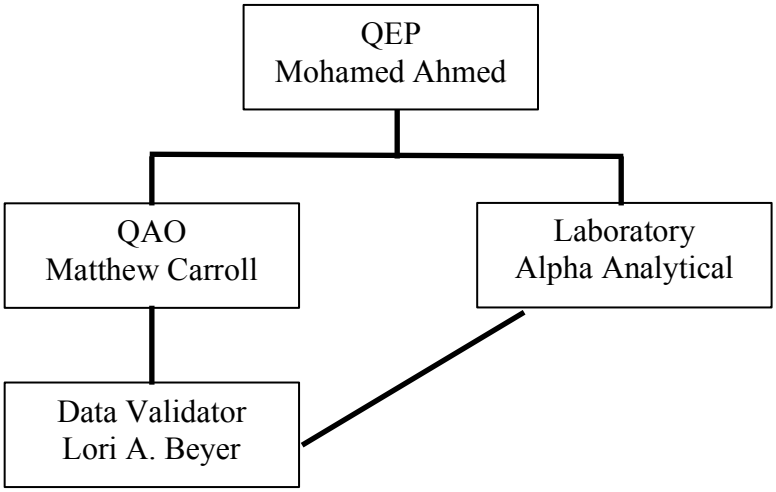
The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the RIWP on behalf of Phoenix Building Supply Inc. (the Volunteer) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

The Project Manager and Qualified Environmental Professional (QEP) will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

The Quality Assurance Officer will be Mr. Matthew Carroll, P.E., principal at Tenen. Mr. Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. His experience involves projects from inception through investigation, remediation and closure. His expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mr. Carroll received his Bachelor of Engineering from Stevens Institute of Technology and Bachelor of Science in Chemistry from New York University and is a New York State professional engineer; his resume is included in Appendix A.

In addition, Tenen will utilize laboratory services (Alpha Laboratories of Westborough, MA) and data validation (L.A.B. Validation Corp., East Northport, New York). The resume for the DUSR preparer, Ms. Lori A. Beyer is included in Appendix A.

An organization chart for the implementation of the Site Characterization Work Plan and QAPP is below.



3.0 SAMPLING AND DECONTAMINATION PROCEDURES

A detailed description of the procedures to be used during this program for collection of the effluent air and groundwater samples is provided below. Proposed sample locations are shown on Figure 6 of the Site Management Plan (SMP). An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

3.1 Level of Effort for QC Samples

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.

- Duplicate samples are analyzed to check for sampling and analytical reproducibility.

- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples.

The analytical laboratory, Alpha Analytical, is certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) as LabIDs 11148 and 11627. NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

3.2 Sample Handling

Samples will either be picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State ASP.

3.3 Custody Procedures

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

3.4 Sample Storage

Samples will be stored in secure, limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, or 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

3.5 Sample Custody

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;

- Sample storage log (same as the laboratory chain of custody); and,
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

3.6 Sample Tracking

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

3.7 Groundwater Sampling

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Monitoring wells will also be gauged for the presence of dense non-aqueous phase liquid (DNAPL). In the event that DNAPL is detected, Tenen will record the thickness and will not collect a sample. If DNAPL is not detected, Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (bladder pump system). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump will be decontaminated between samples and a dedicated bladder will be used.

Groundwater samples will be collected through dedicated tubing. Prior to, and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field observations will be recorded. All collected groundwater samples will be placed in pre-cleaned,

pre-preserved laboratory provided sample bottles, cooled to 4 degrees-C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

All groundwater samples will be analyzed for the following with a Category B deliverable data package:

- TCL VOCs by EPA Method 8260C;

The first sampling event will also be analyzed for the following emerging contaminants with a Category B deliverable data package:

- PFAA by EPA 537;
- 1,4-dioxane by 8270 SIM.

3.8 Effluent Air Sampling

One effluent air sample will be collected in accordance with regulatory guidance. The sample will be collected at the effluent stack of the SSDS.

The effluent air will be first screened for VOCs using a PID.

The sample will be collected in a laboratory-supplied six-liter canister using an eight-hour regulator. The sampling flow rate will not exceed 0.2 liters per minute (L/min). A slight vacuum will be left in the Summa® canister at the end of sampling to documented that the canister did not leak during transit. If no vacuum remains in the canister, the canister will not be sent to the laboratory for analysis, and the sample will be re-collected. The sample will be analyzed for VOCs using EPA Method TO-15.

A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone and chain of custody.

3.9 Analytical Methods/Quality Assurance Summary Table

A summary of the analytical methods and quality assurance methods are included in Table 1, below.

Table 1
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples				Total # Samples	Analytical Parameter	Method	Preservative	Holding Time	Container
		TB	FB	DUP	MS/MSD						
Groundwater	3	1	1	1	1	7	VOCs	8260C	Cool to 4°C HCL	14 days to analysis	(3) 40 mL clear glass vials
	3	0	1	1	1	6	1,4-Dioxane	8270 SIM	Cool to 4°C		(2) 1 L amber glass bottle
	3	0	1	1	1	6	PFAAs	537	Cool to 4°C, Trizma		(1) 250 mL plastic bottle, Trizma preserved
Effluent Air	1	No QA/QC samples				1	VOCs	TO-15	None		6 L Summa

TB – Trip Blank
FB – Field Blank
DUP – Duplicate
°C – degrees Celsius
mL – milliliter
L – liter

3.10 Decontamination

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated sampling equipment will have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

3.11 Data Review and Reporting

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

Groundwater – Class GA groundwater standards and guidance values for groundwater as listed in NYSDEC Technical and Operations Guidance Series (TOGS) 1.1.1; and,
Effluent Air – NYSDOH Air Guidance Values (AGVs) and Matrices, as applicable.

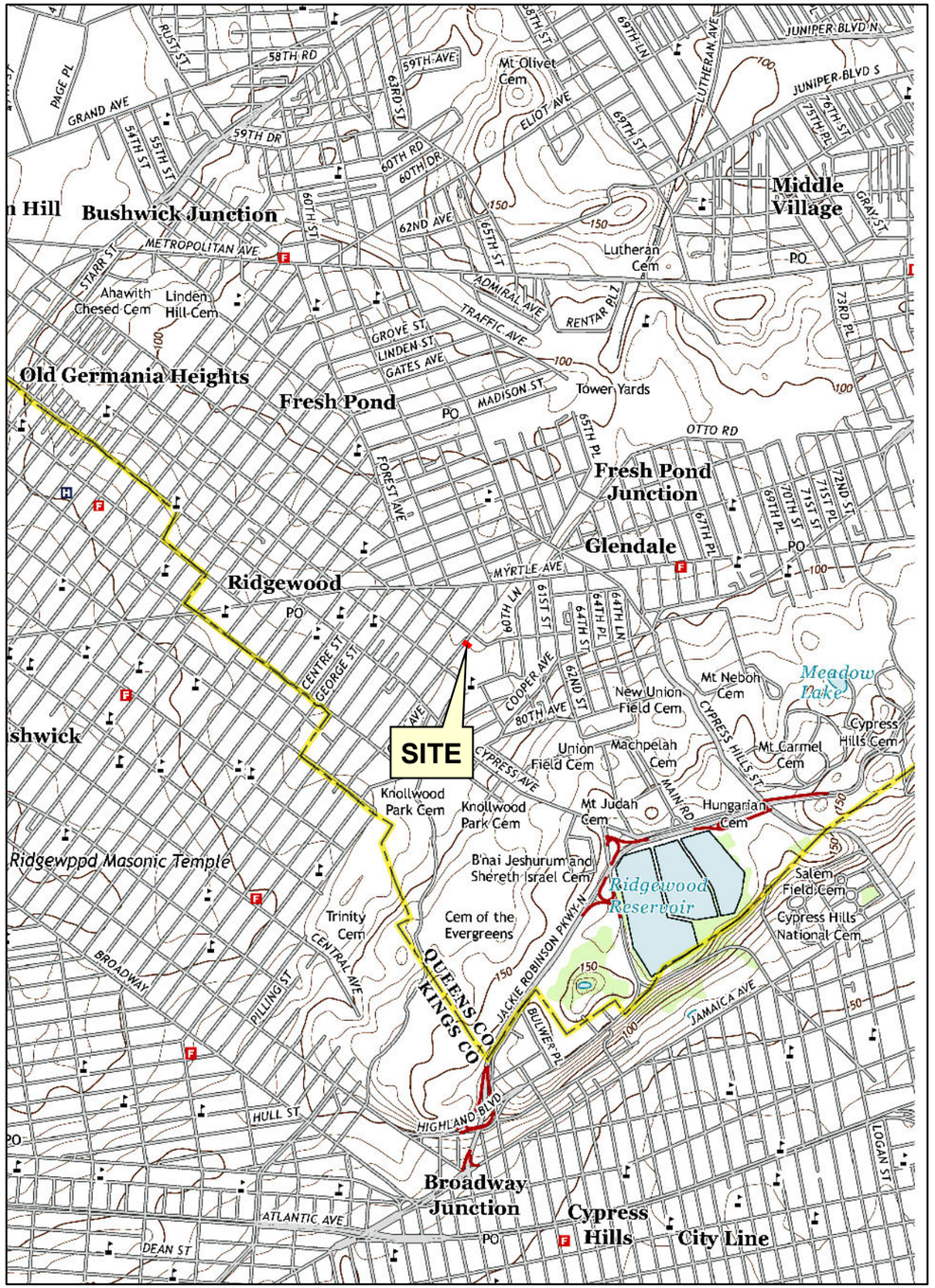
Based on the selected VOC analysis method for soil, the following qualifiers will be employed:

- "JL" for results less than 200 micrograms per kilogram (ug/kg); and,
- "UJL" for non detect results.

These are meant to indicate that the results are biased low in both cases. All Part 375 Commercial Use soil cleanup objectives (SCOs) for VOCs are greater than 200 ug/kg.

Following receipt of preliminary laboratory results and groundwater flow direction is determined from the survey of three permanent monitoring wells, additional monitoring wells will be proposed to delineate groundwater contamination further away from the impacted area. A report documenting the Site Management Plan will be prepared, and will describe Site conditions and document applicable observations made during the sample collection. In addition, the report will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, and field notes will be included in the report as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EqUIS format.

Figures



Basemap: USGS Brooklyn, NY, 2013
http://www.usgs.gov

Site Location

0 1,000 2,000 4,000 Feet

http://gis.nyc.gov/taxmap/map.htm

Department of Finance Digital Tax Map

0 50 100 200 Feet

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2016 v2

0 50 100 200 Feet

Client

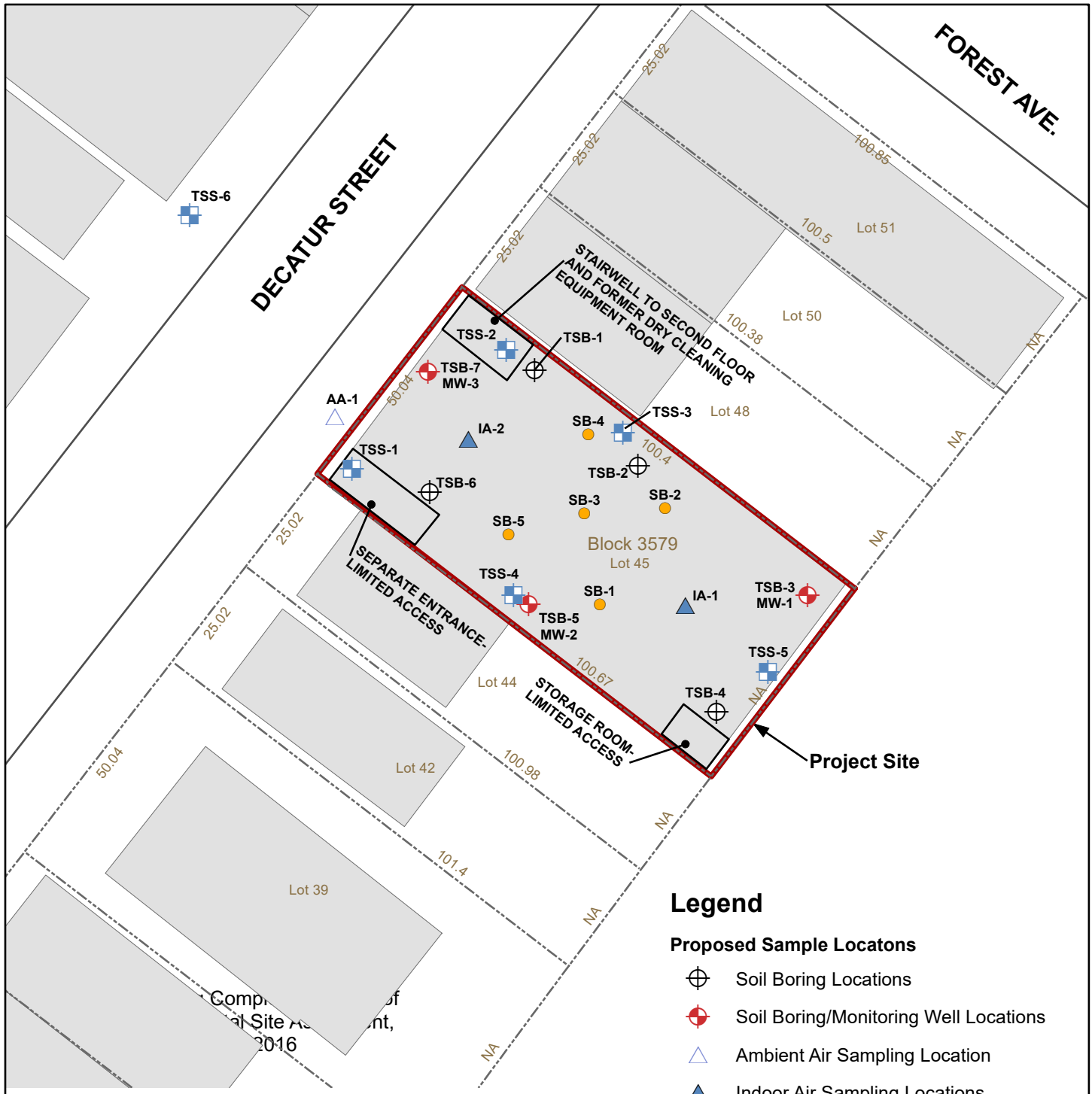
18-46 Decatur Street
Ridgewood, New York
Block 3579, Lot 45

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	KM	May 2017	As Noted

Drawing Title: **Site Location Map**

Drawing No: **Figure 1**



Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

Drawing No. Figure 2	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title Site Layout Map	Date July 2018		
	Scale As Noted		

Appendix A

Resumes

Matthew Carroll, P.E.
Environmental Engineer/Principal

Experience Summary

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

Selected Project Experience

470 Kent Avenue, Brooklyn
As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

500 Exterior Street, Bronx
Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

Gateway Elton I and II, Brooklyn
Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

Affordable Housing Development, Rye, NY
Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

Queens West Development BCP Site, Long Island City, New York
Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

Brownfield Cleanup Program Redevelopment Sites – West Side, New York City
Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

BCP Site, Downtown Brooklyn, New York
Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

West Chelsea Brownfield Cleanup Program Site
Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program
Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

NYSDEC Spill Site– Far West Side, Manhattan
Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

Affordable Housing Site, Brooklyn, New York
Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

New York City School Construction Authority Hazardous Materials Contract
Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

Former Manufacturing Facility, Hoboken, New Jersey
Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

F**ormer Varnish Manufacturer – Newark, New Jersey**
Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

Education and Certifications

Professional Engineer, New York
Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002
Bachelor of Science, Chemistry, New York University, 2002
Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

Mohamed Ahmed, Ph.D., C.P.G.
Sr. Geologist/Principal

Experience Summary

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City "e" designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation.

Selected Project Experience

Willoughby Square, Downtown Brooklyn
As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor's Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

School Facility, Borough Park, Brooklyn
Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

LGA Hotel Site, East Elmhurst, Queens
Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

436 10th Avenue, Manhattan
As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

Brownfield Cleanup Program Site, Downtown Brooklyn
Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

Queens West Development, Long Island City
Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

Former Creosote Site, Long Island City
Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

NYSDEC Spill Site – Far West Side, Manhattan
Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

Active Industrial Facility, Newburgh, New York
Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

Former Dry Cleaning Facility, New York City
Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

Waterfront Redevelopment, Yonkers, NY
Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

Prince's Point, Staten Island, New York
Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

Apartment Complex, New York City, New York
Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.

Publications

"Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight". Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

"Water and Organic Waste Near Dumping Ground in the New York Bight". International Journal of Coal Geology, volume 43. (With G. Friedman)

Education and Certifications

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)
M.Ph., Earth and Environmental Sciences, City University of New York (1998)
M.A. Geology, Brooklyn College (1993)
B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY: General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President
- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director
- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager
- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager
- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and Implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer
- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager
- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist
- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

APPENDIX 7 – HEALTH AND SAFETY PLAN

Health and Safety Plan

for
18-46 Decatur Street
Site Management Plan

18-46 Decatur Street, Ridgewood, Queens, New York
Block 3579, Lot 45
BCP Site #C241194

Submitted to:
New York State Department of Environmental Conservation
Remedial Bureau B, Section C
Division of Environmental Remediation
625 Broadway, Albany, NY 12233-7016

Prepared for:
BHMQ Realty LLC
18-46 Decatur Street
Ridgewood, Queens, New York, 11385

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

September 2018

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental LLC (Tenen) health and safety policies and procedures. The purpose of this HASP is the protection of Tenen field personnel and others during the implementation of the Site Management Plan.

The Site is located at 18-46 Decatur Street in Queens, New York. The Site includes one rectangular-shaped parcel, identified by the New York City Department of Finance Office as Block 3579, Lot 45 and totaling approximately 0.11 acres. The Site is located approximately 100 feet south of the intersection of Decatur Street and Forest Avenue in Queens Community Board 5.

The Site is currently improved with a two-story, warehouse building with offices on the second floor, with a net rentable area of approximately 9,020 square feet. There is no basement present beneath the existing building. The existing building was reportedly constructed in 1953. The Site has been used as a dry cleaner for a known period of approximately 24 years.

1.1 Scope of HASP

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Quarterly groundwater sampling;
- One round of groundwater sampling for emerging contaminants;
- Quarterly sub-slab depressurization system (SSDS) pressure point monitoring; and,
- Collection of one effluent air sample.

Tenen staff and subcontractors will ensure that performance of the work is in compliance with this HASP and applicable laws and regulations.

2.0 PROJECT SAFETY AUTHORITY

The following personnel are responsible for project health and safety under this HASP.

- Project Manager, Matthew Carroll
- Health and Safety Officer (HSO), Mohamed Ahmed

In addition, each individual working at the Site will be responsible for compliance with this HASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

2.1 Designated Personnel

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

Known previous and current uses of the site include operations that used chlorinated solvents and petroleum products, containing volatile organic contaminants (VOCs) and semi-volatile organic contaminants (SVOCs). The following previous investigation summarizes contaminants of concern detected on the site:

In 2016, a Phase I Environmental Site Assessments (Phase I ESA) and Phase II ESA were conducted at the Site and are summarized in the following reports:

- *Phase I Environmental Site Assessment, 1846 Decatur Street, Queens, New York. EBI Consulting (EBI), May 10, 2016.*
- *Phase II Environmental Site Assessment, 18-46 Decatur Street, Queens, New York. EBI, June 3, 2016.*
- *Remedial Investigation, 18-46 Decatur Street, Queens, New York, Tenen Environmental, August 7. 2017*

The findings of the above Site assessments are summarized below. Previous sample locations are shown on Figure 3.

Phase I Environmental Site Assessment, 1846 Decatur Street, Queens, New York. EBI, May 10, 2016

A Phase I ESA conducted in May 2016 identified the historic, use of the Site as a dry cleaner as a REC based upon information provided during the Site reconnaissance and records included in the database report. Based on the information included in the Phase I ESA, the duration of the dry cleaning activities was approximately 24 years. Full Dress Formals was identified as a Small Quantity Generator of Hazardous Wastes on the regulatory database, with no violations. A copy of the Phase I ESA is presented in Appendix A.

Phase II Environmental Site Assessment, 18-46 Decatur Street, Queens, New York. EBI, June 3, 2016

On May 23, 2016, EBI conducted a soil and soil vapor investigation at the Site. The investigation included the collection of ten soil and five soil vapor samples (SB-1 through SB-5). Soil samples were collected with a core drill and hand tools as well as a Geoprobe hydraulic push drill rig. The borings were advanced in the shallow depths, with the deepest boring ending at 8.5 feet below grade.

Soil Sampling and Results
Five soil borings were completed to refusal in the central area of the Site, as shown on Figure 3. Each boring was field-screened for organic vapors using a photoionization detector (PID). No visual or olfactory evidence of contamination was observed in the soil samples. PID readings ranged from 3.1 to 4.9 parts per million (ppm). Two soil samples were collected from each boring and were analyzed for volatile organic compounds (VOCs) by EPA Method 8260.

Soil analytical results identified concentrations of PCE detected above laboratory detection limits in seven of the ten of the soil samples collected from the five borings. The detected PCE concentrations [up to 74.8 micrograms per kilogram (ug/kg)] were below the NYSDEC Unrestricted Use SCO (1,300 ug/kg). No other VOCs were detected in the soil samples.

Soil Vapor Sampling and results
Soil vapor sampling points were installed in the ground floor slab using a hand-held hammer drill to a depth of 0.5 feet below the surface of the floor slab. The soil vapor points were installed prior to the advancement of soil borings and were designated as SB-1 through SB-5. Soil vapor samples were analyzed for chlorinated VOCs by EPA Method TO-15.

No indoor air samples were collected during the Phase II ESA. Concentrations of detected PCE and TCE in the soil vapor samples and presented in the following table, shown on Figure 4, and summarized below:

PCE and TCE Concentrations in Soil Vapor Samples (ug/m^3)					
Sample ID	SB-1	SB-2	SB-3	SB-4	SB-5
PCE	2,790	7,390	138,000	401,000	211,000
TCE	7	34	247	597	219

PCE was detected at concentrations ranging from 2,790 to 401,000 micrograms per cubic meter (ug/m^3). Based on Matrix 2 of the NYSDOH Soil Vapor Guidance, soil vapor concentrations above 1,000 ug/m3 should be mitigated regardless of the indoor air concentrations.

TCE was detected at concentrations ranging from 219 to 597 ug/m^3. Based on Matrix 1 of the NYSDOH Soil Vapor Guidance, soil vapor concentrations above 250 ug/m^3 should be mitigated regardless of the indoor air concentrations.

Remedial Investigation, 18-46 Decatur Street, Queens, New York. Tenen Environmental, LLC, August 7, 2017
A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the Site. A Remedial Investigation Report was prepared by Tenen on August 7, 2017. The 2017 RI included the collection of 24 soil samples, five sub-slab soil vapor samples, two indoor air samples and three groundwater samples.

Soil Sampling Methodology and Results
A total of 7 soil borings were advanced at the Site. Drilling was performed by Aquifer Drilling and Testing, Inc. (ADT) of Mineola, NY. Three soil borings (TSB-3, TSB-5 and TSB-7) were advanced to below the groundwater interface utilizing a Sonic Geoprobe®. Soil samples were collected from plastic sleeves through a five-foot sonic sampler. Four soil borings (TSB-1, TSB-2, TSB-4 and TSB-6) were advanced using a Geoprobe® direct push 6610DT. Soil samples were collected from a two-inch diameter by five-foot long dedicated acetate liner.

For each boring, soil samples were collected from two feet below grade, from the zone of the highest PID readings (if encountered), from the water table interface, and from the next apparent non-impacted zone or the terminal depth of the boring were analyzed. If no contamination was observed, samples were collected from two feet below grade, groundwater interface, and terminal depth. Additional VOC samples were collected from select intervals. At SB-1, a concrete chip sample [SB-1(SURFACE)] was collected for analysis of VOCs.

The table below summarizes the sample designations, locations and depths.

Sample Location	Soil Boring Name	Description of Location
TSB-1	TSB-1 (SURFACE)	Northern corner of Site; adjacent to former dry cleaning equipment room.
	TSB-1 (0-2)	
	TSB-1 (10-12)	
	TSB-1 (12-14)	
TSB-2	TSB-2 (0-2)	Northeastern border, middle of the Site
	TSB-2 (6-8)	
	TSB-2 (31-33)	
TSB-3/MW-1	TSB-3 (0-2)	Eastern corner of the Site
	TSB-3 (0-2) DUP	
	TSB-3 (8-10)	
	TSB-3 (11-13)	
	TSB-3 (78-80)	
TSB-4	TSB-4 (0-2)	Southern corner of Site
	TSB-4 (8-10)	
	TSB-4 (17-19)	
TSB-5/MW-2	TSB-5 (1-3)	Southwestern border, middle of

	TSB-5 (8-10)	Site
	TSB-5 (10-12)	
	TSB-5 (78-80)	
TSB-6	TSB-6 (0-2)	Western end of the Site
	TSB-6 (5-7)	
	TSB-6 (17-19)	
TSB-7/MW-3	TSB-7 (3-5)	Entrance to Site; northwest border of the Site
	TSB-7 (8-10)	
	TSB-7 (28-30)	
	TSB-7 (68-70)	

*DUP=duplicate sample.

Soil samples were analyzed for the following with a Category B deliverable data package:

- TCL VOCs by EPA Method 8260C;
- TCL SVOCs by EPA Method 8270D;
- Pesticides by EPA Method 8081B and PCBs by EPA Method 8082A;
- TAL Metals by EPA Method 6010C and 7471B (mercury, Hg);
- Cyanide by EPA Method 9012B; and
- Hexavalent chromium by EPA Method 3060A.

Summary of Soil Analytical Results

- No compounds were detected above the Commercial Use SCOs.
- No SVOCs, pesticides or PCBs were detected above the Protection of Groundwater SCOs.
- PCE was detected at concentrations above the Protection of Groundwater SCO at two locations (TSB-6 and TSB-1) within the shallow interval. The highest concentration of PCE was identified in shallow soil directly adjacent to the former dry cleaning equipment room.

- A concrete chip sample was collected from the bottom of the slab within the area of the former dry cleaning equipment room. PCE was detected at 55 mg/kg in the concrete chip sample.
- No VOCs were detected below the groundwater interface, with the exception of acetone, a common laboratory contaminant, detected at a low concentration in TSB-5 (78-80).
- Mercury, likely attributed to historic fill material, was detected in one sample at a concentration above the Protection of Groundwater SCO

Sub-slab Soil Vapor, Exterior Soil Vapor and Ambient Air Sampling Methodology and Results

A total of five sub-slab soil vapor points (TSS-1 through TSS-5) were installed approximately two inches below the building slab. TSS-1 was installed at a location adjacent to the former location of the dry cleaning equipment. TSS-2 through TSS-5 were installed throughout the building footprint. One exterior sub-slab soil vapor point (TSS-6) was installed below the public sidewalk on the western side of Decatur Street between Forest Avenue and Seneca Avenue near residential properties on Decatur Street.

Two indoor air samples were collected at breathing height (3-5 feet above the building slab) inside the building, and one outdoor ambient air sample was collected upwind of the Site.

Sub-slab and exterior soil vapor points were installed using a hand-held hammer drill with a concrete drill bit. The drill bit was extended approximately two inches below the slab at each location. At the terminal depth, a sample probe attached to ¼-inch diameter Teflon® tube was installed. The borehole above the sampling probe to grade was sealed using an inert sealant to prevent ambient air mixing with the soil vapor. Ambient air was purged from the boring hole by attaching the surface end of the ¼-inch diameter Teflon® tube to an air valve and then to a vacuum pump. The vacuum pump removed three volumes of air (volume of the sample probe and tube) prior to sample collection. The purged air was collected in tedlar bags and off-gassed away from the Site. The flow rate for both purging and sample collection did not exceed 0.2 liter per minute.

Sub-slab soil vapor, indoor air and ambient air samples were collected in 6-L suma canisters using eight-hour regulators.

The table below summarizes the sample designations, locations and types.

Sample Designation	Sample	Sample Location
Interior Sub-Slab Soil Vapor	TSS-1	Adjacent to Decatur Street, western corner of Site
	TSS-2	Adjacent to former dry cleaning equipment room
	TSS-3	Co-located with soil boring TSB-2
	TSS-4	Co-located with TSB-5/MW-2
	TSS-5	Eastern border, middle of the Site
Exterior Soil Vapor	TSS-6	Public sidewalk on western side of Decatur Street near residential properties
Indoor Air	IA-1	Eastern end of Site
	IA-2	Western end of Site
Ambient Air	AA-1	Upwind of Site

The summa canisters were transported to Alpha Analytical, a New York State ELAP-certified laboratory, under chain of custody procedures and the samples analyzed for VOCs using EPA method TO-15.

Summary of Sub-Slab Soil Vapor, Exterior Soil Vapor, Indoor Air and Ambient Air Analytical Results

- PCE was detected in sub-slab soil vapor, exterior soil vapor, indoor air and ambient air samples. Based on NYSDOH Decision Matrix B, the sub-slab soil vapor concentrations detected at the Site should be mitigated. Mitigation is not required for other compounds.
- The highest concentration of PCE was detected in sub-slab sample TSS-2, located within the area of the former dry cleaning equipment. PCE was detected at this location at a concentration of 3,440 ug/m^3.
- The distribution of PCE beneath the sub slab is consistent with the results of the June 2016 soil vapor sampling completed by EBI, with the highest concentrations identified in

areas closest to the former dry cleaning equipment.

- One exterior soil vapor sample point was installed below the sidewalk on the western side of Decatur Street. PCE was detected at this off-Site location at a concentration of 13.4 ug/m^3.
- Several petroleum-related compounds were detected above ambient air concentrations in sub-slab and soil vapor samples including the following compounds: ethanol, xylenes, benzene, ethylbenzene, heptane and toluene.
- Two indoor air samples were collected along the western and eastern Site boundaries. PCE was detected in both indoor air samples with a maximum concentration of 23.1 ug/m^3.
- Several additional volatile compounds were detected in the indoor and ambient air samples, likely attributed to machinery maintenance inventory stored at the Site, including auto cooling system repair materials

Groundwater Sampling Methodology and Results

Three soil borings (TSB-3, TSB-5 and TSB-7) were converted into two-inch diameter permanent groundwater monitoring wells (MW-1 through MW-3). All wells were installed using a two-inch diameter, fifteen-foot long PVC screen (0.020-inch slot) installed to 10 feet below the groundwater table.

The table below summarizes the sample designations, locations and types.

Sample ID	Description of Location
MW-1	Eastern corner of Site
MW-2	Southwestern border; middle of Site
MW-3	Entrance to the Site; northwest border

Samples were collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) "Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", (EQASOP-GW 001, Revision 3, dated July 30, 1996; Revised: January 19, 2010). All groundwater samples were analyzed for TCL VOCs, TCL SVOCs, pesticides, PCBs, TAL metals (total and dissolved metals), cyanide, and hexavalent chromium.

Summary of Groundwater Analytical Results

- PCE was detected in all three monitoring wells above the Class GA Standard, at concentrations ranging from 9.9 to 25 ug/l. The highest concentration of PCE was detected in MW-2, located along the downgradient border of the Site. No other VOCs were detected above Class GA Standards.
- Several PAHs were detected at low concentrations above Class GA Standards.
- No pesticides or PCBs were detected above Class GA Standards.
- Several dissolved and total metals (magnesium, manganese and/or iron) were detected above Class GA Standards, likely attributable to the conditions of the aquifer.

3.1 Human Exposure Pathways

The media of concern at the Site include potentially-impacted soil, groundwater and soil vapor. Potential exposure pathways include dermal contact, incidental ingestion and inhalation of vapors. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE. The risk of inhalation will be minimized through the use of an air monitoring program for VOCs and particulates.

3.2 Chemical Hazards

Based on historic uses, the following contaminants of concern may be present at the Site:

Chlorinated Solvents
- Tetrachloroethylene (PCE)
- Trichloroethene (TCE)

SVOCs
- Polycyclic Aromatic Hydrocarbons (PAHs)

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this HASP.

3.3 Physical Hazards

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

Head Trauma
To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of

protection provided.

Foot Trauma
To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

Eye Trauma
Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

Noise Exposure
Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

Buried Utilities and Overhead Power Lines
Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

Thermal Stress
The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress

- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind, sleet, snow or freezing.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Care should be taken by all Site workers to avoid slip, trip, and fall hazards. Workers shall not enter areas that do not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the site.

Any worker or oversight personnel with a medical condition that may require attention must inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered and care should be taken to avoid contact.

4.0 AIR MONITORING

A community air monitoring program (CAMP) will be implanted during all invasive activities. Specifically, the generic Community Air Monitoring Plan (CAMP), included as a template in the NYSDEC DER Technical Guidance for Site Investigation and Remediation (DER-10) Appendix 1A, will be implemented. Air quality monitoring equipment will be used during all work activities to measure total organic vapors. A PID (to monitor total volatile organic concentrations) will be used during on-site activities. The equipment will be calibrated daily and the results noted in the project field book. A background level will be established, at a minimum, on a daily basis, and recorded in the field book. The equipment should 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 shut down.
4. All 15-minute readings must be recorded. Instantaneous readings, if any, used for decision purposes should also be recorded.

During the sampling inside and outside the onsite building, particulate monitoring will be performed using a real-time particulate monitor that will monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

Object to be measured: Dust, Mists, Aerosols
Size range: <0.1 to 10 microns
Sensitivity: 0.001 mg/m3
Range: 0.001 to 10 mg/m3
Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust.

Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. The action level will be established at 150 ug/m^3 above the background (upwind) levels; work will be halted and the approach re-evaluated if the the action level is exceeded. Dust suppression techniques will be employed if the downwind PM-10

particulate level is 100 mg/m3greater than the background (upwind perimeter) or if airborne particulates are observed leaving the work area.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear."

Tenen field personnel and other site personnel will wear Level D personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, modified Level D equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A description of the personnel protective equipment for Levels D and C is provided below.

Level D
Respiratory Protection: None
Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D
Respiratory Protection: None
Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C
Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.
Protective Clothing: Same as modified Level D

6.0 EXPOSURE MONITORING

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO and, if workers are wearing respiratory protective equipment, outside the face-piece.

7.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the sampling areas.

8.0 WORK AREAS

During any activities involving drilling or other subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, clarify the type of protective equipment needed, and provide an area for decontamination.

The Exclusion Zone is defined as the area where potentially contaminated materials are generated as the result of drilling, sampling, or similar activities. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located adjacent to the Exclusion Zone. The Support Zone is the area where support facilities such as vehicles, a field phone, fire extinguisher and/or first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all Site workers will assemble in the event of an emergency. These zones shall be designated daily, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins.

Control measures such as "Caution" tape and traffic cones will be placed around the perimeter of the work area when work is being done in the areas of concern (i.e., areas with exposed soil) to prevent unnecessary access.

9.0 DECONTAMINATION PROCEDURES

Personnel Decontamination
Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan.

Disposal of Materials
Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

10.0 GENERAL SAFE WORK PRACTICES

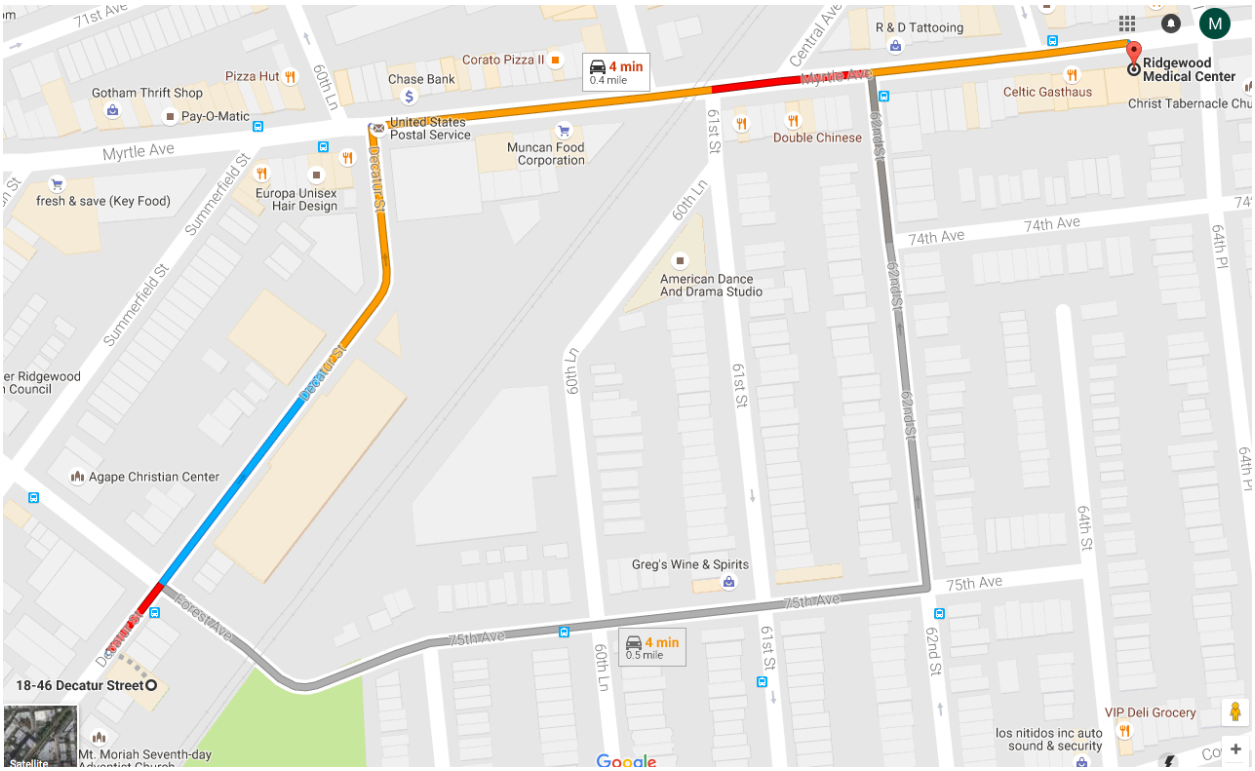
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

11.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—onsite personnel should drive him to a hospital. **The nearest emergency room is at Ridgewood Medical Center located at 6414 Myrtle Ave, Glendale, NY 11385. The phone number is (718) 366-4622.** The route to the hospital is shown and detailed on the next page.

11.1 Route to Hospital



Driving directions to **Ridgewood Medical Center located at 6414 Myrtle Ave, Glendale, NY 11385.**

Driving Directions

1. Head northeast on Decatur St toward Forest Avenue
2. Turn right onto Myrtle Avenue.

11.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 963-8000
NYSDEC Spill Hotline	(800) 457-7362
NYSDEC Manager, Ronnie Lee	(518) 402-9767
Tenen QEP, Mohamed Ahmed	(917) 612-6018
On-site Field Phone, Matthew Carroll	(646) 827-1061
Client representative, Anthony Montalbano	(718) 381-5800

12.0 TRAINING

All personnel performing the field activities described in this HASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

13.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the HASP must be on-site at all times and will be kept by the HSO.

AFFIDAVIT

I have read the Construction Health and Safety Plan (HASP) for the 18-46 Decatur Street, Ridgewood, NY. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____

Appendix B

Injury Reporting Form (OSHA Form 300)

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__ __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name ____________________

City ________________ State __________

Identify the person			Describe the case			Classify the case: CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:		Check the "Injury" column or choose one type of illness: (M)					
(A) Case no.	(B) Employee's name	(C) Job title (e.g., Welder)	(D) Date of injury or onset of illness	(E) Where the event occurred (e.g., Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burns on right forearm from acetylene torch)	Death (G)	Days away from work (H)	Remained at Work: Job transfer or restriction (I)	Remained at Work: Other record-able cases (J)	Away from work (K)	On job transfer or restriction (L)	Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)
			/ month/day			☐	☐	☐	☐	days	days	☐	☐	☐	☐	☐	☐
			/ month/day			☐	☐	☐	☐	days	days	☐	☐	☐	☐	☐	☐
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			/ month/day			☐	☐	☐	☐	days	days	☐	☐	☐	☐	☐	☐
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			/ month/day			☐	☐	☐	☐	days	days	☐	☐	☐	☐	☐	☐
					Page totals ➤							Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Appendix C

Material Safety Data Sheets (MSDS)

MATERIAL SAFETY DATA SHEET

Polyaromatic Hydrocarbons

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
IDENTITY Decanter Tank Tar Sludge Polyaromatic Hydrocarbons (TDG name - Toxic Solid, organic NOS (Waste) (Pyrene)	**DATE PREPARED** February 7, 2007
SYNONYMS, CHEMICAL NAMES, COMMON NAMES Aromatics, PAH, Yellow Sludge	**USE:** Waste Sludge
MANUFACTURER'S NAME Cancarb Ltd.	**EMERGENCY TELEPHONE NUMBER (Health)** (403) 502-6614
ADDRESS P.O. Box 1000, Station M Calgary, Alberta Canada, T2P 4K5	**TELEPHONE NUMBER – TECHNICALINFORMATION** (403)-527-1121

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS			
HAZARDOUS COMPONENTS	**OSHA PEL**	**ACGIH TLV**	**%/wt**
Variable blend of Polynuclear Aromatic Hydrocarbons (PAHs) plus inert solids in water. Concentrations will vary depending upon the extent of product dryness. Hazardous ingredients may include:			
Pyrene (CAS# 129-00-0)	0.2 mg m^{3*}	None established	<7%
Benzo (g,h,i) Fluoroanthrene (CAS# 203-12-3)	None established	None established	<6%
Fluoroanthene (CAS# 206-44-0)	None established	None established	<4%
Phenanthrene (CAS# 85-01-8)	0.2 mg/m^{3*}	None established	<2%
Cyclopenta(d,e,f)Phenanthrene (CAS#203-64-5)	None established	None established	<2%
Anthracene (CAS# 120-12-7)	0.2 mg/m^{3*}	None established	<1%
Benzo(a)Pyrene (CAS# 50-32-8)		None established	<0.1%
Benzo(a)Anthracene (CAS# 56-55-3)	0.2 mg/m^{3*}	None established	<0.1%
Benzo(b)Fluoroanthene CAS # 205-99-2)	None established	None established	<0.1%
Benzo(j)Fluoroanthene (CAS# 205-82-3)	None established	None established	<0.1%
Benzo(k)Fluoroanthene (CAS# 207-08-9)	None established	None established	<0.1%
Indeno(1,2,3)Pyrene (CAS# 193-39-5)	None established	None established	<0.1%
	None established		
*Coal Tar Pitch Volatile. Remaining components are not hazardous.			

EMERGENCY OVERVIEW
Black, brown or yellow aqueous sludge May cause skin and eye irritation Suspected carcinogenic components.

SECTION 3 -HAZARDS IDENTIFICATION

PRIMARY ROUTE(s) OF EXPOSURE: Skin; Eyes. Inhalation if Sludge is Dry

IRRITATION DATA: May cause irritation to skin and eyes and burns to skin with sunlight..

INHALATION:

ACUTE: Not a likely route of exposure in sludge state. Mist may cause respiratory irritation.

CHRONIC: Repeated and prolonged exposure may cause toxicity to the liver and blood. Suspected carcinogenicity .

SKIN CONTACT:

ACUTE: Prolonged and repeated contact may cause irritation. Contact in the presence of sunlight may enhance irritant effects leading to skin burns..

CHRONIC: Systemic toxicity. Suspected carcinogenicity.

EYE CONTACT:

ACUTE: May be irritating, resulting in tearing, reddening, and swelling.

CHRONIC: None known.

INGESTION:

ACUTE: May cause gastric irritation and disturbance.

CHRONIC: Chronic effects of phenanthrene ingestion include liver effects; chronic effects of pyrene ingestion include muscle contraction or spasticity and blood changes; effects of chronic fluoranthene ingestion include kidney, urethra, and bladder effects.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Persons with pre-existing skin disorders may be at increased risk from exposure.

SECTION 4 - EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove from exposure to fresh air immediately. If breathing has stopped, give artificial respiration. Oxygen may be given if breathing is difficult. Get medical attention.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap and water until no evidence of the chemical remains. Get medical attention if irritation develops.

EYE CONTACT: Flush thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower lids, until no evidence of the chemical remains. Get medical attention if irritation develops.

INGESTION: Do not induce vomiting. Treat symptomatically and supportively. Get medical attention if irritation develops.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: None	**FLAMMABLE LIMITS:**	**LEL:** Not applicable	**UEL:** Not applicable

AUTOIGNITION TEMPERATURE: Will not ignite as aqueous solution. If dried, will support combustion.

EXTINGUISHING MEDIA

Water spray, foam, or dry chemical powder. Carbon dioxide may be ineffective on large fires.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters should wear full protective NIOSH approved self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None Known.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Stop discharge and control spill to avoid discharge to the environment. Use wet vacuum to limit spreading and place in suitable container for further handling and disposal. For dry material avoid generation of dust, use limited wetting to prevent spreading and use wet vacuum. Place in metal drum for disposal.

SECTION 7 - HANDLING AND STORAGE

Handling: KEEP WET. Do not allow to dry. Place wet vacuum discharge in metal drum. Empty drum into settling pond tanks. Avoid prolonged or repeated skin contact. Observe good personal and industrial hygiene practices.

Storage: Do not freeze.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION

Where airborne concentrations may exceed guidelines for permissible air concentrations, choose a respirator in accordance with OSHA Respirator Standard 29 CFR 1910.134. (i.e. organic vapor and P100 cartridges, powered air hoods.

VENTILATION

Use general dilution or local exhaust ventilation to maintain exposure below the exposure limits.

PROTECTIVE GLOVES

Choose appropriate gloves in accordance with OSHA Personal Protective Equipment Standard 29 CFR 1910.132.

EYE PROTECTION:

Safety glasses with side shields or choose in accordance with OSHA 29 CFR 1910.133.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Appropriate protective clothing to minimize repeated and prolonged skin contact. (i.e. Sarnex or Coated Sarnex).

RECOMMENDED EXPOSURE LIMITS

OH&S, OSHA and ACGIH have not set exposure limits for this waste mixture.
See Section 2 for exposure guidelines for the components of this waste.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES			
BOILING POINT	100° C	**SPECIFIC GRAVITY**	> 1
pH	Not available	**FREEZING POINT**	0° C
VAPOR PRESSURE (mm Hg)	Same as Water	**SOFTENING POINT**	Not applicable
VAPOR DENSITY (Air = 1)	Not available	**EVAPORATION RATE**	Not applicable
SOLUBILITY IN WATER	PAHs low solubility		
SOLUBILITY	Dry material soluble in hydrocarbon solvents		
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Not available .		
APPEARANCE AND ODOR:	Black, Brown or Yellow Sludge.		

SECTION 10 - STABILITY AND REACTIVITY			
STABILITY	**Unstable**		**Conditions to Avoid**
	Stable	X	None Known. Stable under normal temperature and pressure.
INCOMPATIBILITY (Materials to Avoid) Strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition may release toxic and/or hazardous gases from dried sludge.			
HAZARDOUS	**May Occur**		**Conditions to Avoid**
POLYMERIZATION	**Will Not Occur**	X	None known.

SECTION 11 - TOXICOLOGICAL INFORMATION

This waste sludge has not been tested for acute or chronic toxicity. The following data is for its components >1%:

Pyrene	Oral LD_{50} (mouse): 800 mg/kg
	Inhalation LC_{50} (rat): 170 mg/m^3
Fluoranthene	Oral LD_{50} (rat): 2 gm/kg
	Dermal LD_{50}(rabbit): 3180 mg/kg
Phenanthrene	Oral LD_{50} (mouse): 700 mg/kg

TARGET ORGANS: Skin and eyes

CARCINOGENICITY: Some low level PAH components have been identified as suspected carcinogens by IARC and ACGIH. These include benzo(a)anthracene, benzo(a)pyrene, benz(b,j&k)fluoranthene, and indeno(1,2,3-cd) pyrene.

TUMORIGENIC DATA (RTECS): Phenanthrene, Clclopenta (def) phenanthrene, Benzo fluoranthrene, Pyrene, and fluoranthene.

MUTAGEN DATA (RTECS): Phenanthrene, Cyclopenta (def) phenanthrene, Pyrene, Benzo fluoroanthrene, Fluoranthene, Benzo (ghi) fluoranthene.

OTHER EFFECTS:

PAHs contained in the sludge have the property of photoallergenicity. In the presence of sunlight, these materials have the capacity to irritate the skin to a much greater degree, possibility leading to skin burns, than exposure without sunlight.

SECTION 12 - ECOLOGICAL INFORMATION

Sludge has not been tested for ecotoxicity.

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable federal, provincial, and local environmental regulations. Residual solids may be present in any containers used to handle this sludge. Do not reuse for food, clothing or products for human or animal consumption.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME	TDG CLASSIFICATION	TDG UN/NA
Waste Type 97 Decantar Tank Tar Sludge	6.1 PG II	UN 9397

SECTION 15 - REGULATORY INFORMATION

OSHA: This material is classified as hazardous under OSHA regulations.

WHMS: This material is considered a D2A, D2B Controlled Product.
This material has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

IDL: The following components are on the Canadian Ingredient Disclosure List:

Pyrene
Fluoranthene
Benzanthracene
Phenanthrene
Indeno (1,2,3-cd) pyrene
Benzopyrene
Naphthalene
Anthacene

SARA Title III - Toxic chemicals list 40 CFR 372.65:

Pyrene
Naphthalene
Anthracene

CERCLA Toxic Chemicals List 40 CFR 302:

Pyrene	RQ: 5000 pounds
Fluoranthene	RQ: 100 pounds
Benzanthrcene	RQ: 10 pounds
Phenanthrene	RQ: 5000 pounds
Indeno (1,2,3-cd) pyrene	RQ: 100 pounds
Benzopyrene	RQ: 1 pound
Naphthalene	RQ: 100 pounds
Anthracene	RQ: 5000 pounds

RCRA Hazardous Waste Codes 40 CFR 261.24, 261.33 :

Fluoranthene	U120
Benzanthracene	U108
Indeno(1,2,3-cd)pyrene	U137
Benzopyrene	U022
Naphthalene	U165

SECTION 16 - OTHER INFORMATION

HMIS Ratings:

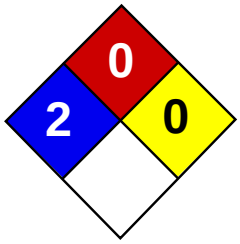
Health	2*
Flammability	1
Reactivity	0

where 0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

This MSDS was prepared by: CANCARB Health, Safety & Environment Department
Telephone Number (403) 527-1121

R: 45; 36/37/38
S: 36/37/39

The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. CANCARB makes no warranty, either express or implied, with respect to this information and disclaims all liability from reliance thereon.



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:29 PM

Last Updated: 05/21/2013 12:00 PM

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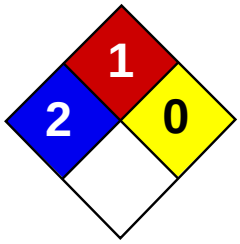

Material Safety Data Sheet
Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C2HCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:
Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:
Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36/38- Irritating to eyes and skin. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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APPENDIX 8
SITE MANAGEMENT FORMS

Project Name (address):

Project Number:

Site Management Reporting Period (calendar year):

Inspection Date:

Inspector and Certifier: must be same person

Report Submittal Date:

Report Preparer: Consultant on behalf of Owner

Site Inspection and Certification Letter Report

Owner/Enrollee hereby submits a Site Management Inspection and Certification Report for the property located at address in neighborhood section of borough, New York for the reporting period, year to year, pursuant to the Site Management Plan (SMP) that is included in the OER approved Remedial Action Report (RAR), dated month/year. The Site is identified as Block number and Lot number on the New York City Tax Map.

1.0 ENGINEERING CONTROLS

Engineering Controls were employed in the Remedial Action to assure permanent protection of public health by eliminating human exposure to residual materials remaining at the site. The Site has number Engineering Control Systems. Engineering Controls for this property are:

Address all ECs in the RAR as follows:

Composite Cover System

Paste summary from RAR Section 5.0 (excluding references to Figures and Appendices).

Vapor Barrier System

Paste summary from RAR Section 5.0 (excluding references to Figures and Appendices).

Active/Passive Sub-Slab Depressurization System or High-Volume Air Exchange, etc.

Paste summary from RAR Section 5.0 (excluding references to Figures and Appendices).

2.0 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under the Remedial Action to assure permanent protection of public health by eliminating human exposure to residual materials remaining at the site. The Institutional Controls for the Remedial Action are:

Paste entire bullet list from RAR Section 6.0.

3.0 INSPECTION NARRATIVE

The site inspection was performed by name(s). The date of the inspection was date.

Provide comprehensive narrative description of the site inspection performed by the party preparing this report and the results of that inspection. The Site inspection must be performed by the P.E. or Qualified Environmental Professional (QEP) certifying this report. The narrative should be comprehensive and should include:

- Description of the inspection activities performed on each Engineering and Institutional Control;
- Description of the performance of each Engineering and Institutional Control;
- Description of findings, conclusions, or recommendations;
- Narrative that refers liberally to an addendum with photos of inspection;
- Description of any deficiencies that were identified during the inspection and how they were (or will be) corrected;
- Copy of any periodic maintenance inspection forms prepared by the building staff.

4.0 STATUS of ENGINEERING AND INSTITUTIONAL CONTROLS

- Are the Engineering Controls and Institutional Controls employed at the Site continuing to perform as designed and continuing to be protective of human health and the environment?

  Response:
- Has anything occurred that impairs the ability of the Engineering Controls or Institutional Controls to protect public health and the environment?

  Response:
- Are any changes needed to the remedial systems or controls?

  Response:
- Has compliance with this SMP been maintained during this reporting period?

  Response:
- Are site records complete and up to date?

  Response:

Active SSDS only:

- Have monthly SSDS inspections by building superintendents been performed, certified on inspection checklists, and maintained on file on site?

  Response:

5.0 DEVIATIONS in PERFORMANCE of ENGINEERING and INSTITUTIONAL CONTROLS

Describe any deviations in the expected performance of Engineering and Institutional Controls as described in the SMP.

6.0 NEXT INSPECTION

The next Site Management Inspection will be performed [year], and the Site Inspection and Certification Letter Report will be submitted by July 30, [year].

7.0 CERTIFICATION

I, [name], certify the following:

- I am a Professional Engineer or Qualified Environmental Professional;
- I inspected [site name (address)] site, site number [OER site number] on [date];
- I prepared this Site Inspection and Certification Letter Report;
- Engineering Controls or Institutional Controls employed at the Site continue to be in place and perform as designed and continue to be protective of human health and the environment;
- Activities on the Site that have disturbed residual soil/fill material have been in accordance with the Soil/Materials Management Plan in the SMP;
- Site records are complete and up to date;
- Nothing has occurred on the Site that impairs the ability of Engineering Controls or Institutional Controls to protect public health and the environment;
- No changes are needed to the remedial systems or engineering controls;

For the following bullets, certification language should include each IC shown in Section 2.0 above. For example:

- Compliance with the Site Management Plan has been maintained;
- Vegetable gardening and farming in residual soils has been prevented;
- Groundwater underlying the Site is not being utilized without treatment rendering it safe for the intended purpose has been prevented;
- The Site has not been used for a higher level of use other than the restricted residential, commercial or industrial use addressed by the Remedial Action;
- The Site continues to be registered as an E-Designated property by the NYC Department of Buildings;

(or)

- The Site continues to have an OER-approved Declaration of Covenants and Restrictions recorded with the property deed by the borough County Clerk.

QEP Name

QEP Signature

Date

APPENDIX 9
O&M MANUAL (FOR EACH ACTIVE EC)

Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE) Operations, Maintenance and Monitoring (OM&M) Plan

For

18-46 Decatur Street, Ridgewood, Queens, New York

Block 3579, Lot 45

BCP Site #C241194

Prepared for:

BHMQ Realty LLC

18-46 Decatur Street

Ridgewood, Queens, New York, 11385

Prepared by:

TENEN ENVIRONMENTAL

121 West 27th Street, Suite 702

New York, NY 10001

mcarroll@tenen-env.com

SEPTEMBER 2018

OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

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OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

1.0 INTRODUCTION

This Operations, Maintenance and Monitoring (OM&M) Plan has been developed to detail the engineering controls (ECs) implemented at the property located at 18-46 Decatur Street in the Ridgewood neighborhood of Queens, NY (Site). The ECs were incorporated as part of the New York State Department of Environmental Conservation (NYSDEC) requirements for soil vapor mitigation.

The Site is currently improved with a two-story warehouse building with offices on the second floor. The warehouse is currently used by Forest Builders Supply, as storage for overstock materials. There is no basement beneath the building, which was reportedly constructed in 1953. The Site is a rectangular-shaped parcel, consisting of 5,000 square feet (0.11 acres) with approximately 50 feet of frontage along Decatur Street. The Site is located approximately 100 feet south of the intersection of Decatur Street and Forest Avenue in Queens Community Board 5.

The objective of the Site Management Plan (FER) is to maintain a negative pressure under the entire Site footprint. The Site location is shown in Figure 1 of the RAWP.

1.1 Background

The Site is currently used as a warehouse for building materials. The immediate prior use was as a dry cleaner for at least 24 years. Other prior uses include as a warehouse of waterproofing materials, a knitting mill, wagon and auto storage, and offices. The former occupant of the Site, Full Dress Formals, was identified as a Small Quantity Generator of Hazardous Wastes by EPA, with no violations.

Based on the results of the RI and the findings of prior investigations, the contaminants of concern at the Site are cVOCs, specifically PCE and TCE. Historic fill-related PAHs and metals

were detected in soil and/or groundwater.

The cVOC PCE was detected at elevated concentrations in sub-slab soil vapor and exterior soil vapor, indoor air, soil and groundwater. PCE was detected above the Part 375 Protection of Groundwater SCO in the shallow soil at two locations on the western side of the Site, with the highest concentration adjacent to the former dry cleaning machine equipment. PCE was detected in groundwater above the Class GA Standard across the Site. In the sub-slab soil vapor, PCE was detected at elevated levels across the Site, with the highest concentration in the area adjacent to the former dry cleaning machine equipment. TCE, a breakdown product of PCE, was also detected at elevated levels in several sub-slab locations. Based upon the distribution of PCE impacts, the presence of PCE and TCE are likely due to historic dry cleaning operations at the Site. Several metals were detected above Unrestricted Use SCOs but below the Commercial Use SCOs in soils. PAHs and dissolved metals were detected in groundwater above the Class GA Standards.

In order to address the potential for indoor air quality impacts at the Site, an active sub-slab depressurization system (SSDS) was designed and incorporated into the current building plan. Due to structural constraints, remaining PCE contamination was left in place at three locations. Two of the areas are below load bearing columns and one area (along the north wall) is along an unstable adjacent building foundation. The maximum depth of PCE impacts at all three locations is four ft-bg. Remaining soil contamination at the Site includes PCE detected at a maximum concentration of 40 milligrams per kilogram (mg/kg) along the sidewall adjacent to the adjacent building foundation. The approved RAWP and January 2018 Decision Document allow for a contingent Track 4 Restricted-Commercial remedy which includes the installation of a soil vapor extraction (SVE) system.

1.2 Summary of Engineering Controls (ECs)

Engineering Controls (ECs) to address remaining contamination through physical protective measures at the Site have been incorporated to ensure that the Site remains protective of public health and the environment.

A sub-slab depressurization system (SSDS) was installed below the current slab-on-grade. The principal components of the SSDS include four suction pits within the gravel layer, solid-construction piping from each suction pit to an exterior suction fan on the roof and monitoring points through the basement slab. The goal of the system was to create a pressure differential of at least -0.004 inches of water column (in-wc). A visual and audible alarm was installed to notify the building management if the pressure at the suction fan has dropped below 50% of the start-up pressure. The system was designed in general accordance with NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (NYSDOH Soil Vapor Guidance).

The objective of the SVE system is to remove PCE from the remaining soil; the system will also address PCE in soil vapor and prevent off-Site migration of soil vapors. This was accomplished by installing three extraction wells in the areas with remaining PCE contamination, and applying a vacuum. The extraction wells were installed to a depth of four ft-bg and placed in a two-foot diameter gravel base. The extraction wells were plumbed into the same piping that was installed for the SSDS. Each of the extraction wells were fitted with valves tying in to the SSDS piping. The discharge location for the blower is located on the building roof consistent with the NYSDEC DAR-1 guidance. SVE performance testing included installation of three shallow piezometers in the soil along the outer periphery of the known areas on contamination exceeding the Protection of Groundwater SCO for PCE, to be treated by each of the three extraction wells. A vacuum reading of 0.1 in-wc induced in each of the piezometers was considered an acceptable value in accordance with the Environmental Protection Agency's (EPA) "*Soil Vapor Extraction Technology Reference Handbook, February 1991.*"

2.0 Engineering Control Operations

Three permanent ECs were incorporated into the building to address potential remaining contamination at the Site. The EC includes:

- an active sub-slab depressurization system (SSDS)
- soil vapor extraction system (SVE)
- cover system

General design drawings and specifications are included in the Appendices.

2.1 Sub-Slab Depressurization System (SSDS)

The SSDS will reduce the potential for soil vapor migration into the building. The SSDS will be inspected at specific intervals as defined in this OM&M.

2.2 Soil Vapor Extraction System (SVE)

The SVE system will reduce the potential for soil vapor migration into the building. The SVE will be inspected at specific intervals as defined in this OM&M.

2.3 Cover system

Exposure to remaining contamination in soil/fill at the site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of a six-inch concrete building slab. The cover system will be inspected at specific intervals as defined in this OM&M.

3.0 Routine Maintenance and Monitoring

EC inspections will be performed by a person knowledgeable with the mechanical systems present in the building and familiar with the property and may include a building or property superintendent.

3.1 EC Inspection Frequency

Site inspection and certification for performance of the active SSDS will be performed on a schedule detailed in the FER and reported in an annual Periodic Review Report (PRR).

3.2 EC Inspection Components

The EC inspections will evaluate the following:

- continued performance of ECs as designed;
- compliance with this RAWP;
- continued achievement of remedial performance criteria;
- accuracy and completeness of Site records;
- necessity for any changes to the remedial systems; and
- general Site conditions at the time of inspection.

In the event of an emergency, such as a natural disaster or an unforeseen failure of any of the ECs, an inspection of the ECs will be conducted by a Qualified Environmental Professional (QEP), as defined by NYSDEC.

3.3 Engineering Control (EC) Inspections

3.3.1 Sub-Slab Depressurization System (SSDS)

EC inspections of the SSDS components shall include the following:

- Observe visible components (fan, vacuum alarm/monitor, vacuum gauge, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum monitor and gauge tubing and riser pipe taps;
- Verify operation of vacuum monitor by disconnecting tubing from riser pipe and noting if the building notification system goes into alarm mode;
- Verify operation of vacuum gauge by disconnecting tubing from riser pipe and noting if the indicator moves to zero (check high and low pressure ports to see if they are plugged correctly);
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe; and
- Inspect power to fan by operating dedicated switch.

3.3.2 Soil Vapor Extraction System

EC inspections of the SVE components shall include the following:

- Observe visible components (fan, vacuum alarm/monitor, vacuum gauge, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum monitor and gauge tubing and riser pipe taps;
- Verify operation of vacuum monitor by disconnecting tubing from riser pipe and noting if the building notification system goes into alarm mode;
- Verify operation of vacuum gauge by disconnecting tubing from riser pipe and noting if the indicator moves to zero (check high and low pressure ports to see if they are plugged correctly);
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe; and
- Inspect power to fan by operating dedicated switch.

3.3.3 Cover System

Visual inspections will be completed of the cover system, consisting of a six-inch concrete building slab. An Excavation Work Plan, which outlines the procedures required in the event the cover system and/or underlying remaining contamination are disturbed, is provided in Appendix 2 of the SMP.

3.4 Inspection Reporting

EC inspections will be performed by a person with knowledge of the mechanical systems present in the building and familiar with the property. Such person may include a building or property superintendent. Inspections will be completed and reported to NYSDEC at the frequency detailed in Section 3.1. The letter report will include, at a minimum:

- Date of inspection;
- Personnel conducting inspection;
- Description of the inspection activities performed;
- Observations for each EC inspected, noting any deficiencies, conclusions and recommendations;
- Copies of inspection forms;
- Indoor air sampling results if applicable; and
- Certification of ECs, as discussed below.

PRR's containing the findings from inspections and associated certifications will be submitted to NYSDEC on an annual basis. PRR's will be submitted in digital format to NYSDEC. The Department will send a reminder notice indicating the date in which the PRR is due.

3.5 Certifications

The results of the EC inspections will be certified at the time of the inspection and the signed certifications included with the PRR.

The Inspection Certification will certify whether:

- on-site ECs are unchanged from the previous certification;
- on-site ECs remain in-place and effective;
- on-site ECs are performing as designed; and

- anything has occurred that would impair the ability of the controls to protect public health and the environment.

4.0 EMERGENCY CONTACT NUMBERS

In the event of any emergency condition pertaining to any EC, the current Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to a Qualified Environmental Professional (QEP), as defined by NYSDEC. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

Contact	Number
Medical, Fire and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Project Contact Numbers

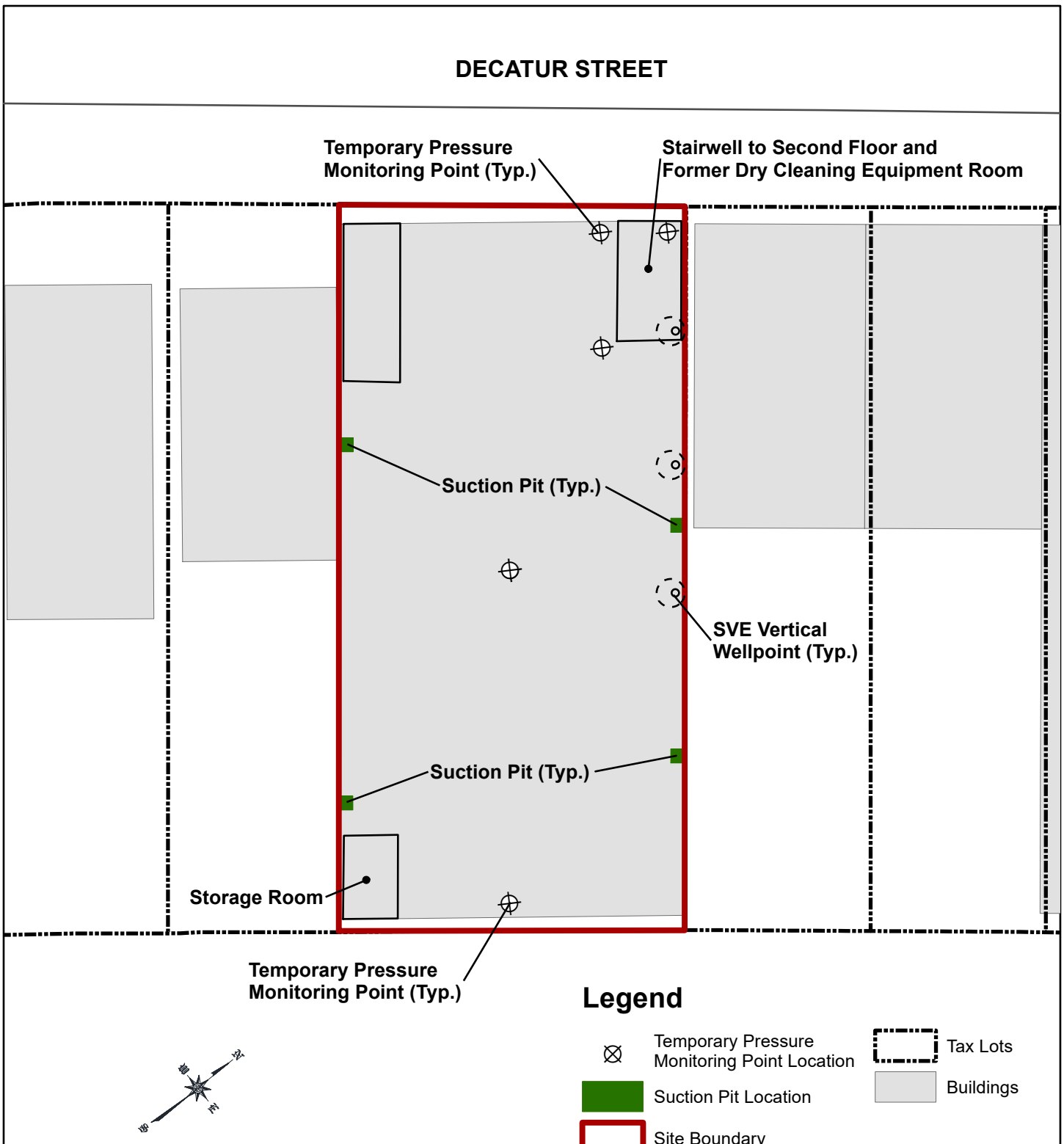
Contact	Number
Matthew Carroll Tenen Environmental	(646) 606-2332 ext. 103

Appendix A

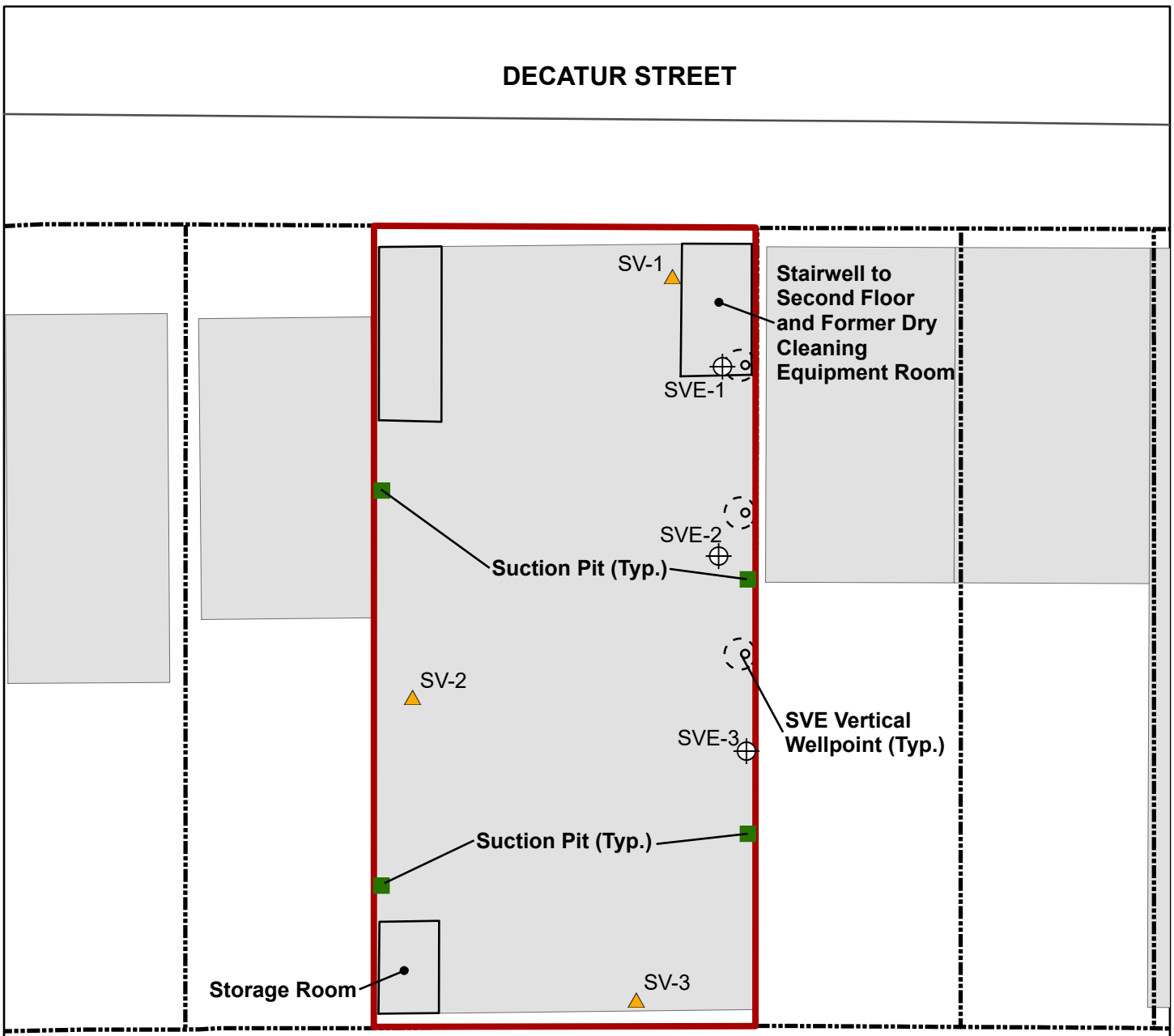
Sub-Slab Depressurization and Soil Vapor Extraction Systems

Appendix A-1

SSDS and SVE Design – As-Built



Drawing No. X-100.00	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title At Grade Layout & Pressure Field Extension Test	Date September 2018		
	Scale As Noted		



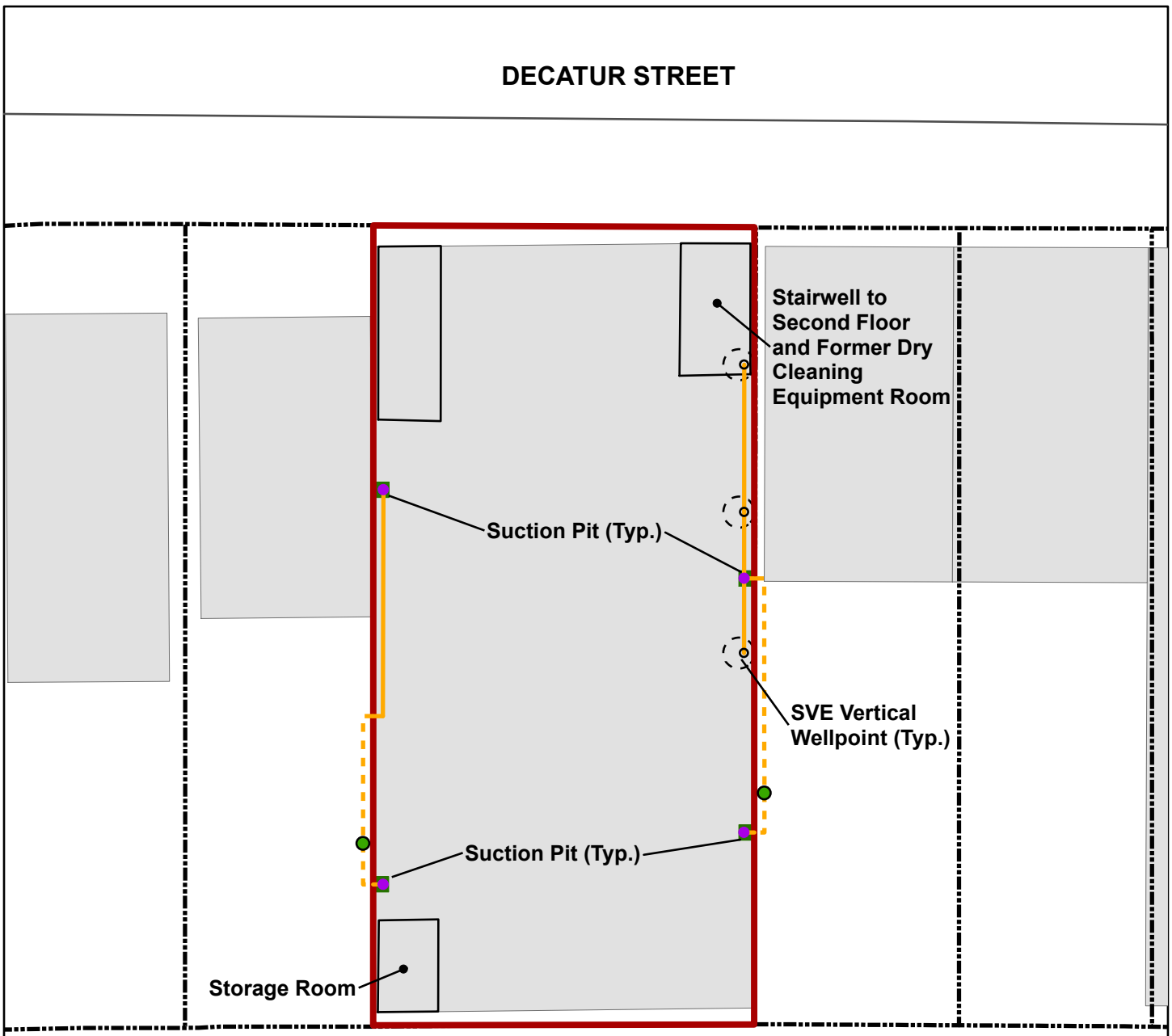
Legend

- Pressure Monitoring Point Location
- SSDS Pressure Monitoring Point
- Suction Pit Location
- Site Boundary
- Buildings
- Tax Lots

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

0 10 20 40 Feet

Drawing No.: X-101.00	Drawn By: LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By: KM		
Drawing Title: Proposed At-Grade SSDS Layout	Date: September 2018		
	Scale: As Noted		



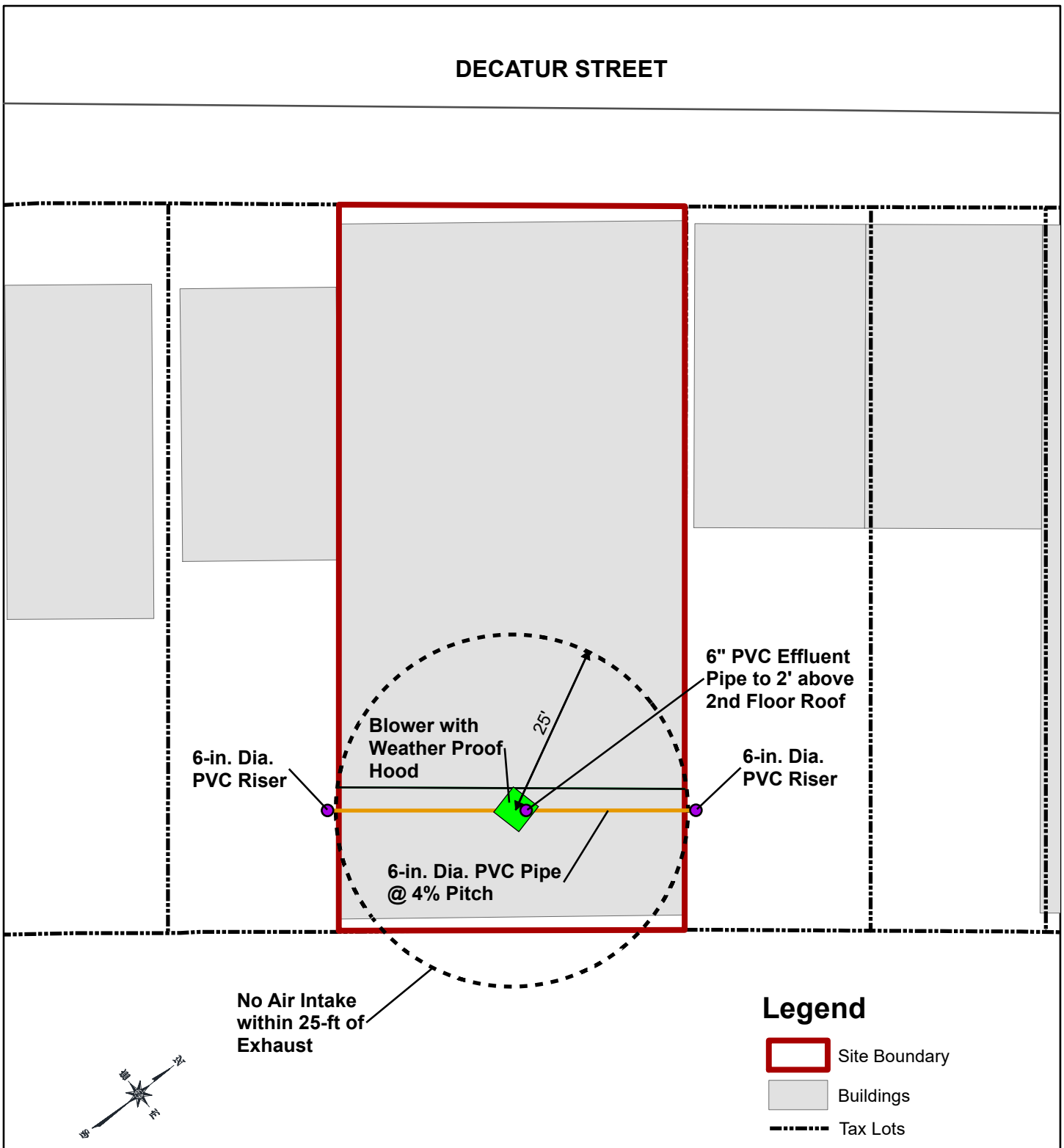
Legend

- 6-in. Dia. PVC Riser
- 6-in. Dia. C.I. Riser
- 6-in. Dia PVC pipe
- 6-in. Dia C.I. Pipe
- Site Boundary
- Suction Pit Location
- Buildings
- Tax Lots

Tax Lot Source: NYC Dept. of Finance
Building Source: NYC Dept. of Information Technology and Telecommunications, GIS Division

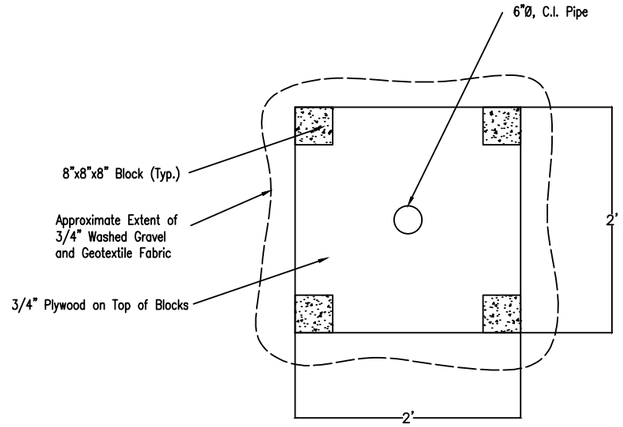
0 10 20 40 Feet

Drawing No.: X-102.00	Drawn By: LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By: KM		
Drawing Title: SSDS Piping	Date: September 2018		
	Scale: As Noted		



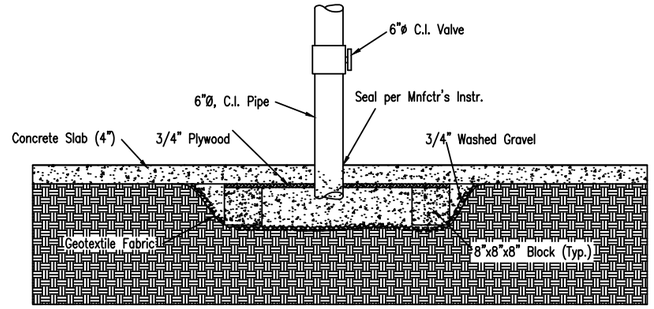
Drawing No. X-103.00	Drawn By LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	18-46 Decatur Street Ridgewood, New York Block 3579, Lot 45
	Checked By KM		
Drawing Title SSDS Roof Layout	Date September 2018		
	Scale As Noted		

1



Suction Pit – Plan View

2

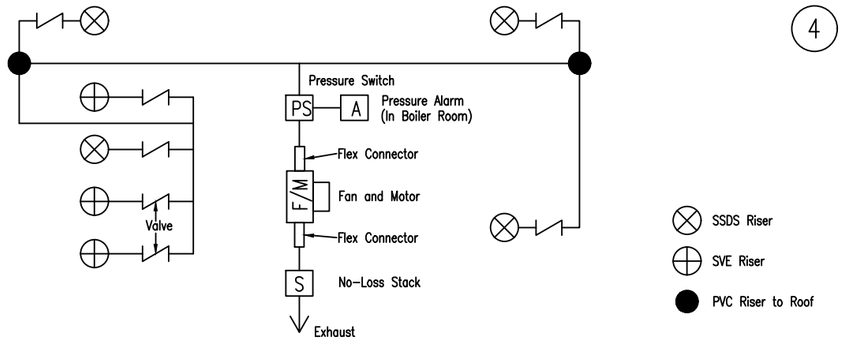


Suction Pit – Section View

3

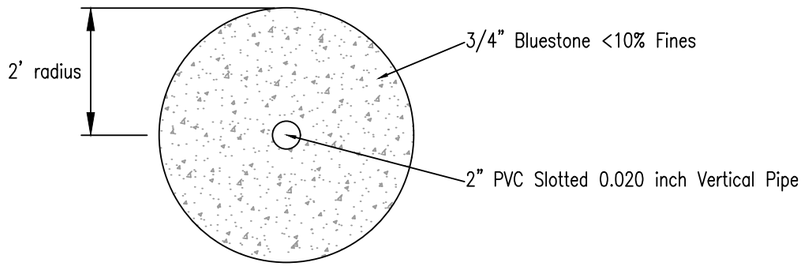
Sub–Slab Depressurization Soil Vapor Extraction Monitoring Point – Side View

4



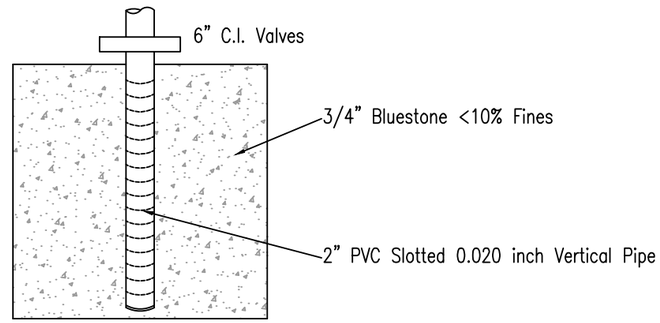
Sub–Slab Depressurization System – Schematic from Riser to Exhaust Location

5



Soil Vapor Extraction Wellpoints – Plan View

6



SVE – Section View

SITE

18–46 Decatur Street
Ridgewood, New York
Block 3579, Lot 45

CONSULTANT

TENEN ENVIRONMENTAL

TENEN ENVIRONMENTAL, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: 646–606–2332
F: 646–606–2379

DRAWN BY	CHECKED BY	DATE	SCALE:
LM	KM	September 2018	As Noted

DRAWING TITLE: X–104.00

DRAWING NO.: SSDS Details

Appendix A-2

Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE) System

Routine Operating Procedures

The long-term operation and maintenance program described below shall continue throughout the life cycle of the sub-slab depressurization system (SSDS) and soil vapor extraction (SVE) system to ensure a proper working order. The long-term operation and maintenance program for the major SSDS/SVE components includes manufacturer's recommendations for the reinstallation of components if modifications to the existing system need to be made, inspection procedures, an operation schedule, typical routine maintenance activities and schedules, and troubleshooting. Refer to Section 3.0 for an overall inspection procedure of the SSDS and SVE.

The alarm system, described below, shall run continuously and only be disconnected for routine maintenance and inspection activities or replacement. The system includes the following:

- vacuum gauge/switch (Dwyer Series 3000MR Photohelic Differential Pressure Switch/Gage)
- system alarm

In case there is a need to relocate the vacuum gauge/switch, the new location shall ensure that the vacuum gauge/switch remains in close proximity to the riser pipe and is installed correctly. If the vacuum gauge is not indicating a vacuum while the system is on, make sure that the tubing connected to the riser pipe is connected to the low pressure port. High pressure ports on the vacuum gauge/switch should be vented to atmosphere.

The vacuum gauge/switch does not require lubrication or periodic servicing. The vacuum gauge is not field serviceable and should be returned to the manufacturer or supplier if repair is needed. Repairs or alterations made to the vacuum gauge/switch by others will void the unit's warranty. The vacuum gauge/switch is factory calibrated and cannot be recalibrated in the field. The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix A-3.

When testing the vacuum alarm/monitor, the tubing that connects the vacuum alarm/monitor to the riser pipe shall be disconnected and the low set point raised above the current reading. If the vacuum alarm/monitor is powered at the time of disconnecting the tubing from the riser pipe, the building system will go into alarm. The building system should go back on-line when the tubing is reconnected to the riser pipe. If the building system is in alarm when there is a vacuum present in the riser pipe, inspect the tubing and riser pipe tap to ensure that there are no blockages. If there is a blockage in either the tubing or the riser pipe tap, remove the blockage and retest the vacuum alarm/monitor.

Common troubleshooting tips that can be followed if the vacuum gauge/switch will not indicate a vacuum or is sluggish include the following:

- The pressure ports (high or low) are not hooked up correctly;
- The fittings or sensing lines are blocked, pinched or leaking;
- The cover is loose;
- The pressure sensor is improperly located;
- The ambient temperature is too low (below 20ºC).

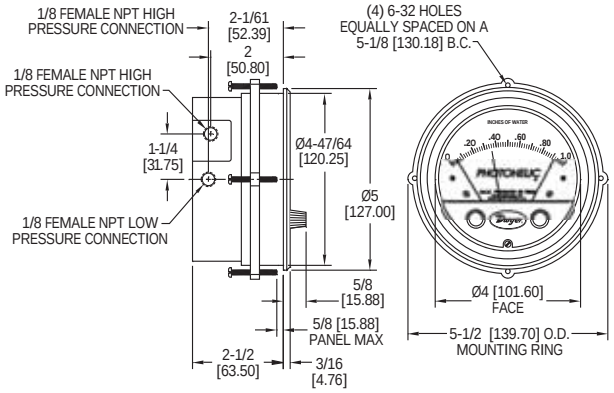
The Plastec P15-2 blower shall operate continuously and only be turned off for routine maintenance and inspection activities or replacement. The fan and motor shall not be left on the system piping without electrical power for more than 48 hours due to possible fan failure that could result from this non-operational storage. The fan unit does not require periodic servicing and should be returned to the manufacturer or supplier for service. Repairs or alterations made to the fan unit by others will void the unit's warranty. The installation and operating instructions for the fan unit have been included in Appendix A-4.

Appendix A-3

SSDS/SVE Vacuum Gauge and Switch – Installation and Operating Instructions

Series 3000MR Photohelic® Differential Pressure Switch/Gage

Specifications — Installation and Operating Instructions



Using solid state technology, the Series 3000MR Photohelic® switch/gage combines the functions of a precise, highly repeatable differential pressure switch with a large easy-to-read analog pressure gage employing the durable, time-proven Magnehelic® gage design. Switch setting is easy to adjust with large external knobs on the gage face. Gage reading is unaffected by switch operation — will indicate accurately even if power is interrupted. Solid state design now results in greatly reduced size and weight. Units can be flush mounted in 4¹³⁄₁₆″ (122 mm) hole or surface mounted with hardware supplied. 3000MR models employ versatile electromechanical relays with gold over silver contacts — ideal for dry circuits. All models provide both low and high limit control and include 18-inch (45 cm) cable assemblies for electrical connections.

Gage accuracy is ±2% of full scale and switch repeatability is ±1%. Switch deadband is one pointer width — less than 1% of full scale. Compatible with air and other non-combustible, non-corrosive gases, they can be used in systems with pressures to 25 psig (1.725 bar). Optional construction is available for use to either 35 psig (2.42 bar) or 80 psig (5.51 bar).

Accessories

Mounting ring, snap ring
18″ (45 cm) cable assembly
(2) ³⁄₁₆″ tubing to ⅛″ NPT adapters
(2) ⅛″ NPT pipe plugs
(4) 6-32 x 1¼″ RH machine screws (panel mounting)
(3) 6-32 x ⅝″ RH machine screws (surface mounting)

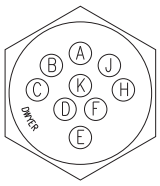
SPECIFICATIONS

GAGE SPECIFICATIONS

Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult Factory.
Accuracy: ±2% of full scale (3000-0 ±3% of full scale).
Pressure Limit: -20″ Hg. to 25 psig (-0.677 bar to 1.72 bar). MP option; 35 psig (2.41 bar), HP option; 80 psig (5.52 bar).
Temperature Limits: 20 to 120°F. (-6.67 to 48.9°C).
Process Connections: 1/8 female NPT (duplicated side and back).
Size: 4″ (101.6 mm) dial face, 5″ (127mm) O.D. x 3-1/8″ (79.38 mm).
Weight: 1.8 lb., (816 g).

SWITCH SPECIFICATIONS 3000MR

Switch Type: Each setpoint has 1 Form C relay (SPDT).
Relay Contacts: (resistive load) 1 Form C rated 1.0 amp @ 30 VDC, 0.3 amp @ 110 VDC or 0.5 amp @ 125 VAC. Gold over clad silver - suitable for dry circuits.
Electrical Connections: 18″ (46 cm) cable assembly with 8 conductors. Optional lengths to 100′ (30.5 m).
Power Requirements: 24 VDC, regulated ± 10%.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Set Point Adjustment: Adjustable knobs on face.



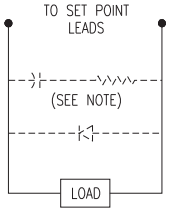
		LETTER	COLOR
Power Supply	+	A	Red
	-	E	Black
Low Set Point	COM	C	Brown
	NC	B	Violet
	NO	D	Blue
High Set Point	COM	H	Green
	NC	J	White
	NO	F	Orange

ELECTRICAL CONNECTIONS

CAUTION: Do not exceed specified electrical ratings. Permanent damage not covered by warranty will result. This unit is not designed for AC line voltage operation.

Electrical connections are made by means of the cable assembly supplied which has a multi-pin female plug installed on one end which mates with the male connector on the rear of the gage. Wire leads on the opposite end of the assembly are connected in accordance with the drawing and chart to the right.

Note: An R/C (resistor/capicitator) snubber is required when switching inductive loads such as a solenoid or contactor. specify Dwyer Instruments, Inc. part number A-600. For DC circuits, also include a 1N4005 diode.



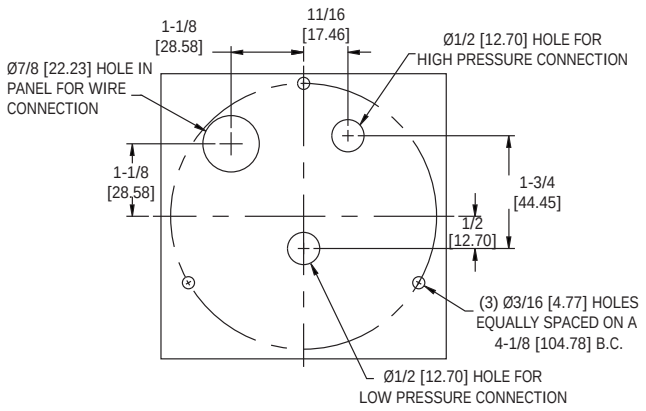
DWYER INSTRUMENTS, INC.
P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361, U.S.A.
Phone: 219/879-8000 **www.dwyer-inst.com**
Fax: 219/872-9057 **e-mail: info@dwyer-inst.com**

INSTALLATION

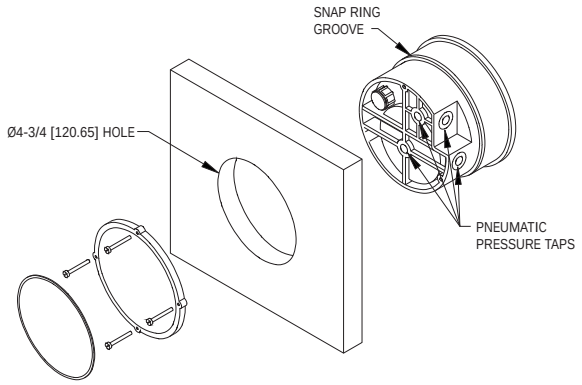
1. **LOCATION:** Select a location where the temperature of the unit will be between 20°F and 120°F (-6.67 to 48.9°C). The tubing feeding pressure to the instrument can be run practically any length required but long lengths will increase response time slightly. Avoid surfaces with excessive vibration.

2. **POSITION:** All standard models are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If your application requires mounting in other than a vertical position, be sure to specify this when ordering.

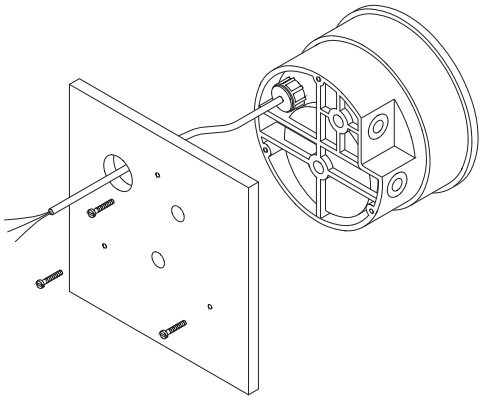
3. **PRESSURE CONNECTIONS:** For convenience, two sets of 1/8″ female NPT ports are available. Plug the unused set with pipe plugs provided. Attach tubing from positive pressure source to port marked "HI" or from negative (Vacuum) source to port marked "LOW". In either case, opposite port must be vented to atmosphere. In dusty environments, we recommend use of an A-331 Filter Vent Plug to keep interior of instrument clean. For differential pressures the higher source is connected to the "HI" port and lower to the "LOW" port.



4. **MOUNTING:** The Photohelic® Switch/Gage may be either panel mounted or surface mounted.



A. PANEL MOUNTING: Cut a 4-3/4″ or 120mm dia. hole in panel and insert the complete unit from the front. Slip on the mounting ring and install the split snap ring in the groove on the bezel. Seat the mounting ring against the snap ring and thread the four screws through the tapped holes. Tighten screws against rear of panel.



B. SURFACE MOUNTING: Drill (3) 3/16″ dia. holes for mounting screws and (1) 7/8″ dia. hole for wire assembly as shown in hole location drawing. Insert screws from rear of panel and thread into tapped holes on back of Photohelic® Switch/Gage case. If rear pressure connections are to be used, make 1/2″ dia. holes located as shown in hole location drawing in left column.

Once Photohelic® Switch/Gage unit is securely mounted, plug wire assembly into 9 pin connector on rear of unit, being careful to match pin locations.

5. **ZEROING:** Once the Photohelic® Switch/Gage is mounted in its final position, check to be sure pointer aligns with zero on scale, when no pressure is applied and both low and high pressure ports are vented to atmosphere. To adjust, turn small slotted screw at center-bottom of gage face.

MAINTENANCE

Upon final installation of the Dwyer® Photohelic® Switch/Gage, no routing maintenance is required. A periodic check of system calibration is recommended.

The Series 3000MR Photohelic® Differential Pressure Switch/Gage is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.

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DWYER INSTRUMENTS, INC.
P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361, U.S.A.
Phone: 219/879-8000 **www.dwyer-inst.com**
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Appendix A-4

SSDS/SVE Fan and Motor – Installation and Operating Instructions

Submittal Data / Specifications
PLASTEC® Series Polypropylene Blowers

PHONE: (941) 751-7596 FAX: (941) 751-7598

APPLICATION:
The PLASTEC® Series blower is designed to work in highly corrosive air applications such as laboratory exhaust or the chemical industry.

MANUFACTURER:
PLASTEC® Series blowers shall be manufactured under the authority of Plastec® Ventilation, Inc., Bradenton, Florida.

MATERIALS OF CONSTRUCTION TEMPERATURE LIMITATION:
Polypropylene casing and wheel recommended 140° F constant and up to 190° F for short periods of time.

HOUSINGS: POLYPROPYLENE
Housing shall be constructed of strong high-density UV treated polypropylene for maximum corrosion resistance. Housing shall be made of one single piece to completely avoid leaks. Split molded housings are not acceptable. Screws holding housing to back plate shall be stainless steel. Housing shall be reversible (except PLASTEC® 35) and rotatable to any of the 8 standard discharge positions. Metal in the air stream will not be tolerated. *Optional carbon impregnated housing available when specified. See Submittal Data/Specifications for Explosion-Proof Series.*

IMPELLER/WHEEL: POLYPROPYLENE
Impeller/Wheels shall be of forward-curved type and constructed of uniformly molded polypropylene blades. Impeller/Wheels shall be both electronically and dynamically balanced. Blower impeller/wheel shall be supplied with a motor shaft bushing and hubcap made of polypropylene to protect shaft end. Blower impeller/wheel shall be suitable for RPM of up to 3450 on models PLASTEC® 15, 20 and 25, and up to 1725 on models PLASTEC® 30 and 35. **Optional** 304 stainless steel wheel is available for models PLASTEC® 20, 25, 30 & 35 when specified.

MOTOR SUPPORT:
Standard stand to be manufactured in galvanized steel with enamel coating. Optional polypropylene motor support or grey powder coated cast aluminum motor support for complete motor protection shall be provided as specified.

MOTORS:
Motors shall be direct drive and of heavy-duty ball bearing type for continuous duty with voltage as specified. Motors shall be totally enclosed fan cooled (TEFC). Optional explosion-proof motors available (see Submittal/Specifications Data for PLASTEC® Explosion-Proof Series). Motor shall be UL and CSA approved for safety.

PERFORMANCE:
Fan performance shall be based on tests conducted in accordance with AMCA 210-85 and ISO 5801.

WARRANTY:
Plastec Ventilation, Inc. warrants its equipment, products and parts, to be free from defects in workmanship and material under normal use and service for **two years** after delivery to the first user. **Motors** carry a **one year** warranty. (See full warranty on page 6 of the Installation, Operation & Maintenance Manual)

PROJECT 18-46 Decatur Street, Ridgewood, Queens, NY			ARCHITECT
CONTRACTOR PAL Environmental	DATE 08/22/2018	SUBMITTED BY	ENGINEER Tenen Environmental

SPECIFICATION

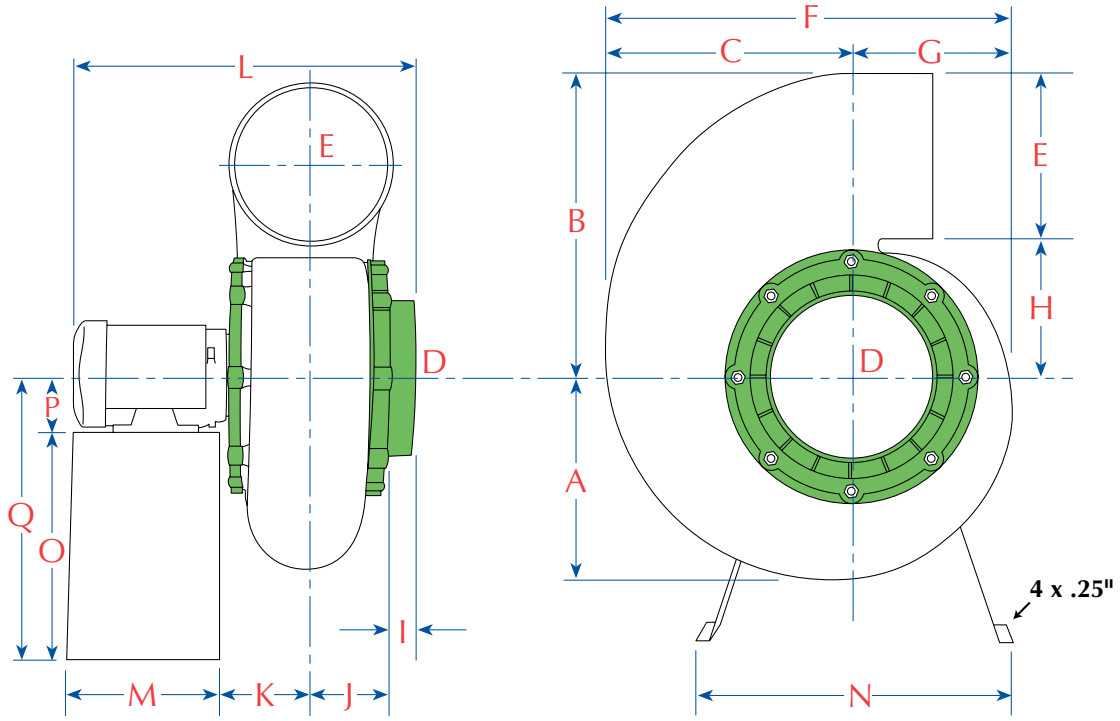
Fan Position	Model #	CFM	In. WG	RPM	HP	Voltage/Phase	Qty	Accessories
CCW360	15-2	130	2.2	3450	1/2		1	Hood

WARNING! DO NOT use in HAZARDOUS ENVIRONMENTS where fan's electrical system could provide ignition to combustible or flammable materials unless it is specifically built for hazardous environments. Plastec Ventilation, Inc.® reserves the right to substitute material or change product specifications.

PHONE: (941) 751-7596
FAX: (941) 751-7598
2216 60th Drive East, Bradenton, FL 34203

PLASTEC 15

Impeller/Wheel Diameter: 5.90



Metal stand optional, not standard. Shown with fan (see Accessories) for dimensional data only. Motor frame sizes may vary upon type of motor used.

DIMENSIONAL DATA (inches)

	A	B	C	D	E	F	G	H	I	J	K	M	N	O
1	6.69	9.44	7.99	4.92	4.92	13.88	5.18	4.52	1.18	2.75	3.14	7.08	13.38	9.44
2	6.69	9.44	7.99	4.92	4.92	11.92	1.25	4.52	1.18	2.75	3.14	7.08	13.38	9.44

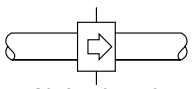
1 - Standard Gray Polypropylene Housing Assembly

2 - Black Carbon Fiber Impregnated Polypropylene Housing Assembly For Explosion-Proof Series

L	P	Q	BLOWER TYPE
17.04	3.50	12.94	PLA15SS2P
15.77	2.79	12.21	PLA15ST2P
18.82	3.50	12.94	PLA15XS2P
18.82	3.50	12.94	PLA15XT2P
17.04	3.50	12.94	PLA15SS4P
16.42	3.50	12.94	PLA15ST4P
18.82	3.50	12.94	PLA15XS4P
18.82	3.50	12.94	PLA15XT4P
17.04	3.50	12.94	PLA15SS6P
14.70	2.48	11.92	PLA15ST6P
19.90	3.50	12.94	PLA15XS6P
14.81	2.48	11.92	PLA15XT6P

SHOWN WITH OPTIONAL ROOF UNIT KIT

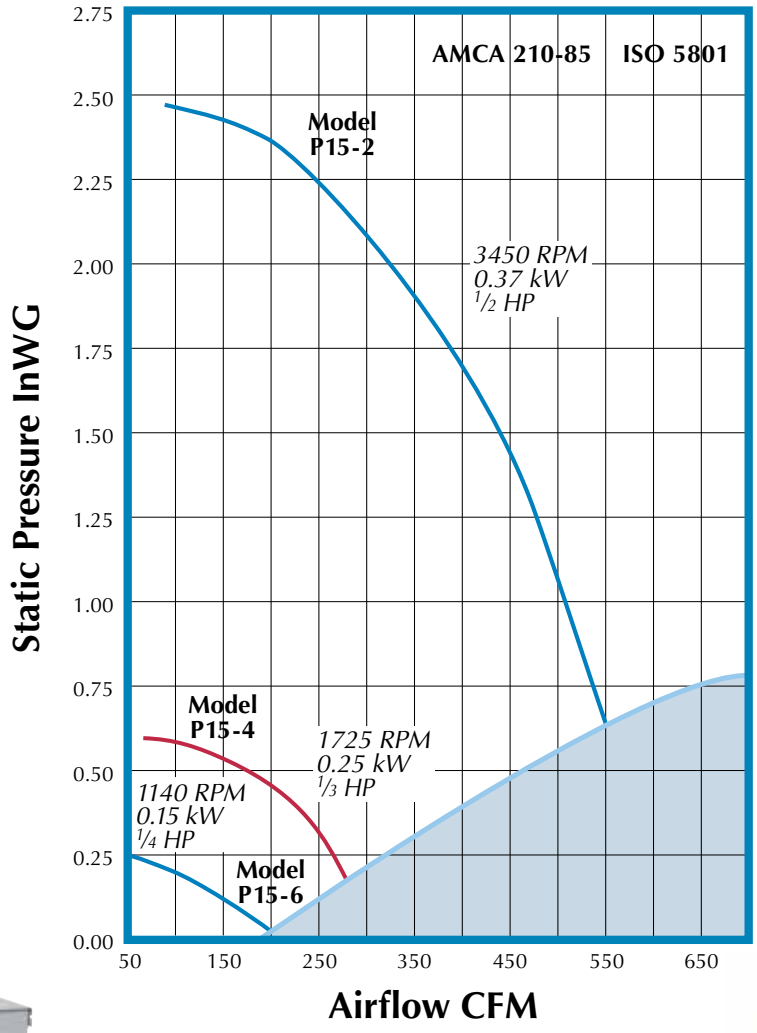
See Accessories Performance and Dimensional Data Sheets for Roof Unit Kits



Noise Level
(Ducted inlet/outlet)
Measured at 5 feet.

R.P.M.	LWA dB (A)
1150	43
1725	54
3450	72

PLASTEC 15



*For **Weather Protection** see optional accessory "Weather Hood Enclosed Pedestal" Model WH3, pictured at right. Also see Model WH5 Aluminum Weather Hood pictured at left.*

ROTATION AND DISCHARGE FOR CENTRIFUGAL FANS

Standard Position

Counter-Clockwise Up Blast CCW 360

Optional Field Adjustable Positions

Counter-Clockwise Top Angular Up Blast CCW 45

Counter-Clockwise Top Horizontal CCW 90

Counter-Clockwise Top Angular Down Blast CCW 135

Counter-Clockwise Down-Blast CCW 180

Counter-Clockwise Bottom Angular Down Blast CCW 225

Counter-Clockwise Bottom Horizontal CCW 270

Counter-Clockwise Bottom Angular Up Blast CCW 315

Notes:

(1) Direction of rotation is determined from the drive side of fan. ***Standard position is up-blast CCW 360.***
(2) On single inlet fans, drive side is always considered as the side opposite fan inlet.
(3) Clockwise available upon request.

APPENDIX 10

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REMEDIAL SYSTEM OPTIMIZATION FOR 18-46 DECATUR STREET.

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APPENDIX 11

COMMUNITY AIR MONITORING PLAN

New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must 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 should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should 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 must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should 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 must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should 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 must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009